DOCUMENT RESUME

ED 478 126 CE 085 036

AUTHOR	Smith, Douglas C.; Davis, Diane C.; Everett, Donna R.; Kruger, Diane; McLaren, Constance H.; Morse, H. Pauletta; Nelson, Sandra J.; Smith, Gloria Jean; Yacht, Carol; Yohon, Teresa
TITLE	Alternative Classroom Management and Instructional Delivery Systems in Business Education.
INSTITUTION	Delta Pi Epsilon Society, Little Rock, AR.
PUB DATE	2002-00-00
NOTE	141p.
AVAILABLE FROM	Delta Pi Epsilon, P.O. Box 4340, Little Rock, AR 72214 ($22). Web site: http://www.dpe.org/ .
PUB TYPE	Information Analyses (070) -- Opinion Papers (120)
EDRS PRICE	EDRS Price MF01/PC06 Plus Postage.
DESCRIPTORS	Alternative Teacher Certification; Block Scheduling; *Business Education; Business Education Teachers; Classroom Techniques; Course Organization; Curriculum Development; *Distance Education; Educational Administration; *Educational Practices; Educational Technology; Faculty Development; Higher Education; Integrated Curriculum; Integrated Learning Systems; *Multimedia Instruction; Online Courses; Teacher Education; *Teaching Methods; *Web Based Instruction

ABSTRACT

Identifies and assesses various nontraditional approaches to business education in high school, university, and graduate school. "Block Scheduling: Considerations for Business Education" (Gloria Jean Smith, Douglas C. Smith) describes ways to maximize learning for high school students by restructuring class time. "Distance Learning: Challenges and Rewards" (Teresa Yohon) suggests various ways to integrate distance learning technologies into traditional business education. "Developing and Delivering an Interactive Video Course" (Diane C. Davis, H. Pauletta Morse) focuses on the challenges of one distance learning approach. "Managing Groups in the Distance Learning Environment" (Donna R. Everett, Carol Yacht) describes how to manage web-based courses and students. "Curriculum and Faculty Development in Distance Education" (Sandra J. Nelson, Constance H. McLaren) describes attempts to develop policies to support distance education. "Research in Distance Education" (Diane Kruger) discusses research in the differences of quality between distance and traditional education. "Business Teacher Education in an Interdisciplinary Cohort Model (Douglas C. Smith) describes an alternative certification program in secondary education. All articles include substantial references., and there are six tables/figures. (MO)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 478 126

ALTERNATIVE CLASSROOM MANAGEMENT AND INSTRUCTIONAL DELIVERY SYSTEMS IN BUSINESS EDUCATION

Coordinated by

Douglas C. Smith

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

R.B. Mitchell

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

Delta Pi Epsilon

BEST COPY AVAILABLE

CE 085 316

Information concerning these publications may be obtained from the Delta Pi Epsilon National Office. © Copyright, 2002, by Delta Pi Epsilon. Printed in the United States of America.

2000-2001 DPE NATIONAL EXECUTIVE BOARD
President: Marcia A. Anderson; Southern Illinois University Carbondale
Vice President: Larry G. Pagel; Northern Michigan University
Secretary: Margaret Erthal; Southern Illinois University Edwardsville
Treasurer: Cathy Tkacik; Pueblo South High School

2000-2001 DPE NATIONAL PUBLICATIONS COMMITTEE
Chairperson: Janice Schoen Henry; Southern Illinois University Carbondale
Mary Ellen Adams; Indiana State University
Sharon Andelora; Upper Montclair, NJ
Connie A. Anderson; University of Nebraska-Lincoln
James Bartlett II; University of Illinois--Urbana-Champaign
Phyllis Bunn; Delta State University
Ok D. Park; University of Arkansas
Martha Rader; Arizona State University
Douglas C. Smith; University of Kentucky
Allen D. Truell; Ball State University
Patricia I. Wilson; Alabama A&M University
Jensen J. Zhao; Ball State University
Helene L Zimmermann; Mt. Pleasant, MI

DPE NATIONAL OFFICE
Executive Director: Robert B. Mitchell; P.O. Box 4340; Little Rock, AR 72214

Alternative Classroom Management and Instructional Delivery Systems in Business Education

by

Douglas C. Smith, Coordinator and Chapter Author
University of Kentucky

Diane C. Davis, Southern Illinois University

Donna R. Everett, Morehead State University

Diane Kruger, Southwestern Illinois College

Constance H. McLaren, Indiana State University

H. Pauletta Morse, Southern Illinois University

Sandra J. Nelson, Indiana State University

Gloria Jean Smith, Kentucky State University

Carol Yacht, Jerome, Arizona

Teresa Yohon, Colorado State University

Published by
Delta Pi Epsilon
National Honorary Professional Graduate Society in Business Education

Table of Contents

Introduction vii

Chapter 1: Block Scheduling: Considerations for Business Education by Gloria Jean Smith and Douglas C. Smith 1
Restructuring the School Day 1
Planning for Block Scheduling 2
Changes 3
Student Organizations 3
Collaboration 4
Stakeholders 4
Staff Development 4
Identifying Opposition to Block Scheduling 5
Block Scheduling Configurations 6
4 x 4 Block 6
A/B Block 6
Copernican Block 7
Trimester Block 7
Flexible Block 7
Evaluating and Assessing Results 7
Evaluating Block Scheduling Components 8
Identifying Advantages and Disadvantages of Block Scheduling 9
Advantages to Block Scheduling 9
Identifying Disadvantages to Block Scheduling 11
Implementing Block Scheduling in Business Education 12
Advantages Cited by Business Educators 12
Disadvantages Cited by Business Educators 13
Responding to Block Scheduling in Business Education 14
References 15

Chapter 2: Distance Learning: Challenges and Rewards by Teresa Yohon 18
Considerations in Making the Transition to Distance Education 19
Educational Objective Identification 19
Audience Identification 20
Technology Background of Instructor 20

Infrastructure Support 20
Other Important Considerations 20
Linking Pedagogy and Technology Tools 21
Communication Tools 22
Collaborative Tools 27
Content Tools 28
Distance Education Research and Its Effect on Student Learning 31
Differences in Learning Due to Distance Education 32
No Significant Differences in Learning Due to Distance Education 32
Challenges and Rewards of Distance Education 33
Challenges for a Teacher 33
Challenges for a Student 34
Rewards 34
Summary 34
References 35

Chapter 3: Developing and Delivering an Interactive Video Course by Diane C. Davis and H. Pauletta Morse 38
History and Definition of Distance Learning 38
Research Regarding the Effectiveness of Distance Learning 39
Advantages and Disadvantages 41
Challenges 42
Administrative Challenges 42
Instructional Challenges 43
Planning and Developing of the Interactive Video Course 45
Establishment of Goals and Objectives 45
Development of Instructional Materials 46
Classroom and Resource Management 47
Test Administrative and Management 48
Implementation of the Interactive Video Course 49
Preparation for Delivery 49
First Day Delivery 50
Evaluation in the Interactive Video Course 52
Summary 52
References 53

Chapter 4: Managing Groups in the Distance Learning Environment by Donna R. Everett and Carol Yacht 55
Theory 55
Rapid Growth of Distance Learning 55
Purpose of DL 56
Program Support and Facilities in DL 56
Definitions Related to DL 57
Definitions Related to DL 58
Research Review Related to Managing Groups in DL 61
Conclusion to Theory about DL 66
Application 66
Introduction 66
Getting Started with Collaborative Learning in DL 69
Examples of Group Activities 72
Evaluation 74
Dialogue 74
Chat Room Visits 75
Student Assignments 75
Group Assignments 75
Additional Considerations 76
Summary 76
References 78

Chapter 5: Curriculum and Faculty Development in Distance Education by Sandra J. Nelson and Constance H. McLaren 81
Course, Instructor, and Content Selection 81
Instructor Training 83
Instructor Certification 84
Course Design 86
Course Modification, Revision, and Updates 91
Assessment 92
Student Course and Faculty Evaluations 93
Faculty Workload and Compensation 94
Copyright and Intellectual Property 96
Exemplary Programs 97
Additional Considerations 98
References 98

Chapter 6: Research in Distance Education
by Diane Kruger 100
Research Questions 101
Distance vs. Traditional Education 102
Effectiveness of Technology 103
Teacher and Student Characteristics and Attitudes 103
Interaction in the Distance Education Classroom 104
Cost of Distance Education 105
Quality of Distance Education Research 105
Research Implications 109
Conclusion 110
References 111

Chapter 7: Business Teacher Education in an Interdisciplinary Cohort Model
by Douglas C. Smith 116
Rationale for the Alternative Design 116
The University of Kentucky Interdisciplinary Cohort Model 119
The School Cohorts 119
The Common Core 120
The Content Cohorts 125
Program Benefits 125
Problems with the Model 126
References 129

Introduction

"Alternative" may be the term that best defines our educational era. Educators are seeking alternatives that provide more effective instruction, more authentic assessments, and enhanced access to education. Business educators today have access to alternative classroom management and delivery systems that represent both opportunities and challenges for the field. This monograph addresses contemporary classroom management and delivery systems in terms of opportunities and challenges.

Smith and Smith start the discussion by providing a foundation for implementing block scheduling in business education. They review the literature, the various block scheduling plans, and advantages and disadvantages of alternative structures of school time. The wrap up their chapter with suggesting for implementing block scheduling in business education.

Yohon, in the second chapter, introduces distance education from the perspectives of challenges and rewards of using distance education. She provides definitions, challenges to both learners and instructors, and links pedagogy and technology tools. She concludes by reviewing the technologies available in distance education.

Interactive video is the topic developed in the third chapter by Davis and Morse. They provide historical perspective, advantages and disadvantages of using interactive video, research available in interactive video environments, and challenges posed by interactive video technology. They then address the planning and development of interactive video courses.

The management of groups in distance education is developed by Everett and Yacht in the fourth chapter. They introduce the "language" of distance education. They provide research findings concerning the management of groups of learners in distance education. Actual application of distance education with groups is addressed. They also broach the subject of controversial issues surrounding distance education, such as providing privacy protections.

The fifth chapter is devoted to web-based instruction. Nelson and McLaren synthesize best practices for instruction through web-based technology. They introduce many useful on-line resources. They conclude by describing practical applications of web-based instruction in business education.

Research in distance education is the major theme of the sixth chapter. Krueger discusses the research base in distance education from the perspective of acquisition of skills and knowledge. She also distinguishes traditional education from distance education. She outlines the criteria for selecting courses for distance delivery. She discusses critical literature findings about interaction in distance education. She also discusses the economics of distance education from the perspective of learning effectiveness.

In the final chapter, Smith introduces an innovative graduate delivery system for secondary teacher education, including business/marketing education, using an interdisciplinary cohort model. He describes the use of cohorts of pre-service teachers with anchored instruction in public secondary schools. He describes how the interdisciplinary goal is achieved. He concludes by developing strengths that result from implementing the model as well as obstacles to migrating to this innovative model of teacher education.

Chapter 1

Block Scheduling: Considerations for Business Education

Gloria Jean Smith, Kentucky State University
Douglas C. Smith, University of Kentucky

Business education students, like other high schools students, have traditionally constructed schedules of classes with as many as six or more classes per day. That ability to take many classes has allowed students to pursue business education in addition to the traditional classes such as mathematics, language arts, science, and social studies that are required for high school graduation.

This configuration was the curriculum tradition borne of the comprehensive high school movement that followed World War II that emphasized breadth of curriculum opportunities. Vocational education, as we know it today, is a child of the comprehensive high school reform movement. Business education with its inclusion in the vocational education movement also gained prominence. There have been, of course, many reform movements since that time after World War II but few have challenged the very foundations of the secondary school such as Carnegie units, high school graduation requirements, and configurations of the school day.

Restructuring the School Day

The current reform environment in secondary schools challenges all these dimensions of the schools. One of the areas of challenge has been use of school time. Sizer (1992) provided a blueprint for restructured secondary schools in his now famous *Horace's School*. His work is the basis for a network of restructured secondary schools called the Coalition for Essential Schools. One of the principles of reform practiced in those schools has become what we now refer to as block scheduling. The logic of block scheduling is that too much valuable school time is wasted when students "shift gears" between the many classes found in the traditional student schedule. Further, that schedule may cause cognitive overload by presenting so many divergent topics in a school day. The most salient point, however, is that students in traditional schedules simply do not have the time in each class to think deeply about their schoolwork.

Sizer, of course, is not the only champion of block scheduling. The National Education Commission on Time and Learning produced a report, *The Prisoners of Time* (Mistretta, Polansky, 1997) that describes the problem created by the traditional method of scheduling classes:

> For over the past 150 years American public schools have held time constant and let learning vary. The rule, only rarely voiced, is simple: learn what you can in the time we make available. It should surprise no one that some bright, hard-working students do reasonably well. Everyone else, from the typical student to the dropout, runs into trouble.

Carroll (1996) describes the problem even more graphically:

> Assuming a 7-period day, a homeroom, and lunch, a typical student will be in 9 locations pursuing 9 different activities in a 6 ½-hour day. If the schedule includes Physical Education he or she may have changed clothes twice and showered once.

Shortt and Thayer (1999) indicate that the traditional 55-minute schedule focuses on passive learning, fragmented instruction, and disrupted concentration. They conclude that large amounts of information are presented to students who rarely have enough time to internalize the information and make connections for further applications.

Edwards (1995) concludes that the structure of the educational system itself inhibits school improvement, and that today's students need more time to concentrate. Phillips (1997) agrees and concludes that teachers need to teach differently for block scheduling and that students need preparation for new ways of learning that block scheduling can accommodate.

Planning for Block Scheduling

Implementing block scheduling is a complex process requiring change. School administrators and faculty must adjust how they deal with issues involving student organizations, collaboration, stakeholders, and staff development.

Planning for the implementation of block scheduling includes many facets. The effort will require many changes in all aspects of school life. Student organizations may be affected in unintended ways that reach beyond individual schools. Issues involving facilitating collaboration, addressing stakeholders concerns, and

implementing staff development should precede implementation of any block scheduling plan.

Changes

Block scheduling has the potential to cause many changes in the business education programs of secondary schools. Those changes may include the schedule, availability, and access to business classes. Block scheduling allows students to schedule more courses. When students take more business courses, existing faculty and facilities may be stretched. Advanced courses in business education may have to be sacrificed so that teachers are available to teach basic business curricular offerings. There are also issues raised by block scheduling for the way in which business education is taught and learned. For example, can students become as competent in keyboarding in one semester of one Carnegie unit in 90 minutes classes for a semester as they would in a whole year of 45-minute classes?

Student Organizations

Block scheduling may also affect business education student organizations. For example, if students are required to be enrolled in a business course for membership in Future Business Leaders of America, what happens to membership in a second semester for students who complete the business Carnegie unit in one semester?

For such reasons, business teachers need to make sure that they are represented on planning committees for block scheduling, particularly when the decision to migrate to block scheduling is site based. Since a reform initiative such as block scheduling has profound implications for business education, the business education faculty needs to gather as much information as possible. If the school has not experienced any form of block scheduling, this process should start with checking with state professional organizations and/or state business education supervisors to determine sites where business teachers report success with block scheduling as well as sites where business teachers report difficulty resulting from block scheduling.

On-site visits to these schools are critical to gathering foundational data about the impact of block scheduling on curriculum, student learning, and faculty planning. This information will supply data from which to plan a smooth transition to block scheduling. Teachers in these schools can relate their experiences with block scheduling, and visiting teachers can actually observe classes taught over

the block scheduled extended times and talk to students about their perceptions of block scheduling.

Collaboration

Schools that have administrators and policymakers collaborating are more successful (Matthews, 1997). He recommends involving individuals such as students, parents, administration, business partners, school board, community members and teachers in all disciplines in the feasibility study. Involvement of business education advisory committee members assists in the advocacy for business education that may be needed in planning for block scheduling.

Stakeholders

Local community colleges, district vocational/technical education schools, and/or any area business colleges should be consulted since high school students may also be matriculating there (Phillips, 1997). In Kentucky the decision to migrate to block scheduling and the particular configuration are school site determined. This has created many logistical problems because multiple sites send students to a single vocational/technical school. Therefore, scheduling configurations at all the sending schools are important to the planning process at each school. Commitments to consistency of those schedules are also important. Involving the school community in choosing a model and molding the schedule to meet the needs of the students helps build a sense of ownership of the model (Queen, & Gaskey, 1997). This is an opportunity to involve business education student organizations wherever possible in the process and to orchestrate a smooth transition to block scheduling. In schools without business education organizations, students need input and information about the migration to block scheduling.

Staff Development

Begin staff development before implementation and continue throughout the transition to full implementation (Mutter, Chase, & Nichols, 1997). Becoming adept at using new teaching styles before attempting block-scheduling helps staff adjust in easier stages. Teachers should learn not only new methods of teaching but also how to vary methods of assessment such as portfolios, projects and oral presentations.

Hackman's (1995) implementation guidelines are an excellent reference source covering faculty input, feedback procedures, training opportunities, teacher

fatigue, holidays, classroom monitoring, modified course offerings, and adjusted requirements. Shortt and Thayer (1999) have an excellent handbook for implementing block scheduling in secondary schools. It comes with a CD containing brochures, surveys, assembly schedules, master schedules, timelines, course descriptions, lesson plans, training plans for teachers, assessment tools, and vocational schedules.

Identifying Opposition to Block Scheduling

Even with the help of such "how-to" guides, the transition from traditional to block scheduling can be very emotional. Strock and Hottenstein (1996) warn to "beware of gifted opposition." In their case studies of block scheduling implementation, they have observed opposition by teachers and parents associated with honors courses who are usually satisfied with the current program and see no reason to change. This group, in his analysis, most often leads the opposition to block scheduling. Such potential opposition again points to the need to make sure that business educators, advisory committee members, and students are involved in the planning process. Secondary schools are, of course, very politicized and program advocacy is often necessary to protect the interests of particular programs such as business education.

Change the whole school, Carroll (1996) argues, at once. Schools, according to Carroll, have a in-built rejection mechanism that is disruptive and subverts change. He, therefore, recommends avoiding pilot programs and schools-within-a-school.

Lonardi (1998) describes how fear, propaganda, and complacency caused block scheduling to fail at his school. Math and science teachers feared less material would be covered. Teachers feared possible detriment to students with short attention spans. The school board, community, and half the faculty had not been in on the initial planning. A group of parents and teachers met clandestinely and had children go door to door with an inaccurate petition to end the block scheduling implementation claiming that taxes would increase significantly if the schedule were to change.

Ineffective principals and older traditional teachers who were, according to Lonardi, unwilling to change their teaching style were the major obstacles. Shortt and Thayer (1999) observed that many administrators are reluctant to adopt the block schedule because to do so would imply that their schools were not working properly.

A national organization actually has been formed to block scheduling. Its acronym is NO-BS and it maintains a thought provoking web page at

www.netaxs.com/~twin/newpage. Before implementing a block schedule, check out this site and look at the downside of abandoning the traditional schedule. Block scheduling, of course, is a reform initiative that works better for some sites and programs than others. This collection of articles and surveys, albeit biased, points this out.

Block Scheduling Configurations

Block scheduling is a generic term for several time configurations of the school day. The most common types of configurations are: 4 X 4 or semester block; A-B or alternate day; Copernican or intensified scheduling; trimester model, and flexible block scheduling.

4 X 4 Block

A 4 X 4 plan usually involves four semester-long courses that meet 90 minutes per day per semester. Teachers teach three classes per day with a 90-minute planning period (Edwards, 1995). This 4 X 4 plan allows students to complete 32 Carnegie units in four years of study. Teachers teach fewer students (eg. 90) per semester with this model but teach more students (eg. 180) per year) (Mutter, Chase, & Nichols, 1997). Another popular 4 X 4 configuration involves three 109-minute blocks with one 55-minute block daily (Shortt, & Thayer, 1995).

These 4 x 4 configurations share the advantages of having teachers prepare for fewer courses per semester and having teachers work with fewer students per semester. Students can retake failed courses immediately the following semester. Students may also take more electives than a traditional scheduling model allows. School systems may save money by buying fewer textbooks under this scheduling model (Rettig, & Canady, 1997).

A/B Block

An A/B block scheduling plan or alternating day configuration consists of eight classes per year. Each class meets for a full year with an alternating four classes meeting for 80-90 minutes each day. Variations of this model include odd/even, day 1/day 2, or week 1/week 2 (Matthews, 1997). Another variation of this schedule is the even block schedule (Matthews, 1997) wherein Monday, Thursday, Friday include seven 52-minute classes, and Tuesday, Wednesday are 95-minute blocks. Yet another variation consists of three 90-minute blocks and two shorter 47-minute traditional blocks or three double-block periods of 104 min-

utes each with a fourth period each day available for study, extra help from teachers, or extracurricular activities (Phillips, 1997)

Copernican Block

The Copernican or intensified block scheduling plan (Wronkovich, M., Hess, C. A. & Robinson, J. E., 1997) includes two 100-minute classes per day minutes for 60 days or one trimester (Sturgis, J., 1995). Six courses are taught per year under this configuration.

Trimester Block

The trimester model represents yet another block scheduling configuration. This configuration (Matthews, 1997) has five classes in each of three terms. Each class is seventy-minutes in length. A variation of this model allows 75 days of block scheduling and 30 days of intercession (Shortt, T.L. & Thayer, Y.V., 1995). The intercession may be used for community service, field trips, foreign language immersion, mentoring, distance learning, apprenticeships, remediation, gifted enrichment, or research.

Flexible Block

A flexible block scheduling plan (Kruse, C.A. & Kruse, G.S., 1995) is often accompanied by interdisciplinary teams of teachers, most often in middle schools, deciding on the optimum use of time and student grouping. The model involves planned experiences referred to as interdisciplinary units of study. This configuration is designed to address the feeling of isolation, alienation, and helplessness felt by some educators and students under a traditional scheduling plan.

Evaluating and Assessing Results

Researchers in higher education have for decades considered schools as "living" laboratories. Sturgis (1995), however, considers schools poor laboratories. He discussed the difficulty in using random sampling and assignment techniques, using experimental and control groups, and isolating and controlling treatment variables. Another problem with evaluating different schedules is determining what the desired outcomes are. If schools are switched to block scheduling to improve standardized test scores, stakeholders may be disappointed since achievement usually remains the same, or rises only slightly (Phillips, 1997). While there is not much in the way of hard data to support that block scheduling im-

proves student achievement, there's a lot of anecdotal evidence, according to Phillips, that block schedules improve the learning environment and the quality of the school day for both teachers and students. He notes that when the goal is to improve teacher and student morale and increase graduation rates, block scheduling is effective.

Evaluating Block Scheduling Components

There are nine commonly evaluated components in block scheduling (Mutter, Chase, & Nichols, 1997): school data (absences, failure rate, etc); central office data (textbook savings, staffing requirements etc); surveys of teachers, students, parents, guidance counselors, and administrators; interviews with department heads; and interviews with a random sample of students. Mutter, Chase, & Nichols found, using these data sources, that teachers were displeased by the effect of block scheduling on extracurricular activities. Membership in co-curricular activities, such as FBLA dropped. Another major problem, also of critical importance to business education, was student access to elective courses. Staunton (1997) evaluated his own school as well as three others and found that more teachers were able to use cooperative learning strategies, varied instructional practices, new teaching strategies, and a more personalized approach to students. Block scheduling reportedly was especially favorable for good students, allowed students additional time to get help and understand material, provided time for beneficial tutorial and small-group activities, and created a more relaxed climate for teachers and students.

Almost all data collected is qualitative rather than quantitative. In today's educational environment of high stakes quantitative accountability, the lack of standardized quantitative testing may be problematic. Schroth and Dixon (1996), for example, observed that the measure of achievement most stressed today, test scores, is conspicuously sparse. improved student grades may not reflect increased learning, particularly if in some classes students cover less material (Kramer, 1997). Kramer gave an unexpected reason for graduation rates to increase under block scheduling. Sometimes when students find out they can finish the courses they need to graduate in one semester (or a quarter if they are using the Copernican schedule), they drop*in*. Some schools in British Colombia noted that they had difficulties because a large and unexpected number of dropouts returned to school after the block schedule was adopted.

Outside evaluators are often hired to check for effectiveness, as was done in Maryland. Often unexpected outcomes are discovered, such as Guskey and Kifer's (1995) finding of a 60% reduction in discipline problems due to less time in the hall during class changes.

A summary of block scheduling follow-ups (Eineder, D.V. & Bishop, H.L., 1997) pointed out that most studies reporting improved achievement relied on honor rolls, GPAs, and percentage of As and Fs rather than standardized achievement tests. The few studies using standardized tests found no differences, and two Canadian studies spanning 20 years of block scheduling reported negative results in achievement. His advice for assessment of block scheduling in specific schools is to define the goals to be evaluated and then check to see if those goals are being met, and how well.

Identifying Advantages and Disadvantages of Block Scheduling

Designing the right block-scheduling plan for a school requires careful assessment of advantages and disadvantages.

Advantages to Block Scheduling

Block scheduling has advocates who find many advantages to this reengineering of the school day. Queen and Gaskey (1997) list five advantages of block scheduling: greater flexibility in classroom instruction, longer planning periods, greater course offerings for students, reduced number of class preparations of teachers per semester, and more time in class for more in-depth study

Greater flexibility. Longer class periods and fewer classes per day allow a school greater flexibility to plan events and instructional practices not suited to a 40- or 50-minute class period. Phillips (1997) adds that students can take a greater number of classes and be exposed to a broader variety of career possibilities. Also, because of the greater time blocks and the encouragement to varied instruction, teachers often invite members of the community in as guest lecturers. The larger time blocks also allow students to shadow or intern with businesses in the community.

Longer planning periods. Teachers enjoy and use the longer planning periods allowed in block scheduling to collaborate and design more enriching, meaningful activities.

Greater numbers of course offerings for students. One of the chief advantages of block scheduling for students is the opportunity to take greater numbers of courses. Rettig and Canady (1997) indicate that students can take up to four or more additional courses than is possible in traditional, non-block scheduling. Canady and Rettig (1993) mention that students earn more credits, and have fewer tests and less homework due to fewer classes per semester. Students may

then explore different learning experiences while still meeting the expanded graduation requirements in place at many schools.

Reduced numbers of preparations. Just as students must prepare for fewer classes each day, faculty also have fewer classes per day and per semester. This reduced number of classes allows faculty to reflect more fully before preparing classroom learning experiences.

Improved school atmosphere. Teachers and students reported feeling less stress, the school environment was cleaner, and roll call took less valuable class time (Rettig & Canady, 1997). In addition, this study found fewer tardies recorded. Advantages are not just an American-reported phenomenon. Kramer (1997) lists dozens of studies from Canada and the U.S. reporting that block scheduling results in a more relaxed atmosphere with a reduction in suspensions and/or discipline referrals.

Few additional costs. The most amazing aspect of this block scheduling restructuring effort, according to Edwards (1995), is that it requires nothing new and costs no more than the traditional scheduling system. In Mutter, Chase, and Nichols (1997) case study, one school had to add a new teacher, but the textbook savings offset the increase in the cost of the teacher and supplies.

School culture. Block scheduling appears to address cultural issues more satisfactorily than the traditional schedule. Queen and Gaskey (1997) claim that as the diversity of the student population increases, the flexibility of block scheduling becomes ever more desirable. Because of second chances, the dropout rate in schools that use block scheduling tends to fall rapidly. The students who flunk don't fall a whole year behind their agemates. They can still graduate on time. Phillips (1997) points out the advantages of extra time for utilizing community resources such as guest speakers, job shadowing, and field trips.

Faculty/student cooperation. Eineder and Bishop (1997) emphasized the need for positive relationships between students and adults, and mentioned that block scheduling has advantages positively impacting this situation: smaller student loads, fewer teachers for students to satisfy, and more opportunities for teacher-supervised group activity.

Faculty absenteeism. Bryant and Claxton (1996) focused on advantages to teachers. A study of PE teachers found that teachers were absent less, experienced less burnout, had improved student/teacher relationships, and reported a substantial increase in teacher/teacher interaction for collaboration. Students

and parents, according to Bryant and Claxton, overwhelmingly prefer the block schedule; and with the exception of math teachers, most teachers in the other disciplines do too.

Efficient use of class time. One of the most hotly debated issues in block scheduling is time itself. There are disagreements about whether time is actually lost. Shortt and Thayer (1999) assert that when comparing the traditional year to a block scheduled year, there are around 200 hours saved through block scheduling because of fewer hall class changes, pre-instruction activities, and post-instruction activities. When teachers worry about having less time to teach under block scheduling, according to Shortt and Thayer, they are not taking into account the time spent getting students in the class to come to order, calling roll, focussing students on the day's activity, and gearing down at the end of the class. This time, if wisely spent, can add much of the missing time back.

Laboratory study. Phillips (1997) notes that block scheduling is especially effective in lab-oriented classes, including technology and science, because it allows time to complete the activity and discuss the results in one class. Less time is consumed setting up and taking down experiments, and cleaning up student work areas.

Identifying Disadvantages to Block Scheduling

As with any endeavor that requires substantial change, disadvantages will appear along with the obvious advantages to a block scheduling regimen. Disadvantages to block scheduling according to Queen and Gaskey (1997) include: too much time spent on independent study, lack of textbook suitability, teachers tend to retain old teaching habits, students graduate too soon without defined career paths or appropriate maturity.

Too much time on independent study. Numerous studies conclude that block scheduling results in less homework (Schroth & Dixon, 1996; Staunton, 1997; Schliefer, Crisp, & Held, 1996; Rettig & Canady, 1997; Skrobarcek, Chang, Thompson, Johnson, Atterberry, Westbrook & Manus, 1997; Shortt & Thayer, 1999). Rettig and Canady (1997) view block scheduling as advantageous because there is less homework. Queen and Gaskey (1997) listed one of the disadvantages of block scheduling that too much independent study was needed outside of class. Parents, according to Queen and Gaskey, feel that the last part of the class period is wasted. In a poll of students they found that the last 20 minutes of block scheduled class were used to do homework 30% of the time, have more lecture 18%, discussion groups 18%, review sessions 30%, and have

free time in 6% of the cases. Hackmann (1995) suggested that principals be required to patrol teachers' classrooms the last 30 minutes of each period to make sure teachers are using every possible minute in an instructionally effective manner.

Textbook suitability. One of the biggest problems with implementing block scheduling is human nature, and the resistance to change. Textbooks are usually not geared for block schedules, and teachers tend to keep on teaching the way they are accustomed. Staunton (1997) reminds us that changing formal structures is not the same as changing norms, habits, skills, and beliefs.

Student graduation concerns. Because of the greater number of credits students can earn each year, they may be able to graduate earlier under most block plans. Many early graduates are not socially ready to enter the workforce, nor have they taken any type of career pathway seriously (Phillips, 1997).

Implementing Block Scheduling in Business Education

Business education can capitalize on the advantages of block scheduling, but business education must also cope with specific disadvantages that may be unique.

Advantages Cited by Business Educators

There are several studies that refer to issues related to block scheduling in business education. Studies point out several advantages to block scheduling for business education, such as richer instruction, better SCANS achievement, increased availability of courses, and increased enrollment in co-op classes.

Richer instruction. Limback (1998) notes the possibilities for richer instruction. She recommends that teachers have special training before starting a block schedule, observe experienced block teachers to get ideas, overplan, be creative, integrate other subjects into keyboarding, change activities every 30 minutes, and provide more supplementary work when dealing with absent students. Schliefer, Crisp, and Held (1996) indicated in their study that block scheduling provides more time for visiting businesses, mentoring, shadowing, and cooperative education.

Better SCANS achievement. Schliefer, Crisp, and Held (1996) also indicate that two competencies of the SCANS (Secretary's Commission on Achieving

Necessary Skills) report are better met by the block schedule. They are interpersonal working with others, and working with a variety of technologies. They recommend a foundation of basic skills, thinking skills and personal qualities.

More courses available. Limback (1998) indicated that more business courses can be offered in a blocked schedule. Because more electives are possible, students may take additional business courses to increase their professional/technical training (Limback, 1998).

Increased co-op enrollment. Greaven (1996) cited an increase in number of students. That increase, however, carried attendant increased wage and hour reports, training requirements for work sites, and problem resolution.

Disadvantages Cited by Business Educators

No restructuring effort can be accomplished without some disadvantages. Studies have revealed the following possible disadvantages to a block scheduling initiative for business education: instructional problems, problems with co-curricular activities, problems with number of business teacher preparations, and a lack of empirical data about the effects of block scheduling.

Instructional problems. For example, Schliefer, Crisp, and Held (1996) cited problems such as less material can be covered, it may be more difficult to determine critical content, and keeping students focused for 90 minutes. They indicate that business students have trouble making up work and transferring to other schools. Queen and Gaskey (1997) revealed that more than half of teachers surveyed said they covered less material, but 22.3% said they covered more material than they had under the traditional schedule.

Problems with co-curricular activities. Block scheduling can present problems for co-curricular activities. Greaven (1996) cited the problem that students are less likely to join DECA if they are only in the program for one semester. In addition, he mentioned that competitions are held in early spring, and students who start full credit courses in the second semester aren't ready, and fall semester students may be so removed from the content that they are less likely to compete. Jewell (1998) concluded from a survey of business teachers that FBLA in schools using block scheduling is suffering. More students are taking the business classes under block scheduling in North Carolina, but they are not joining FBLA.

Problems with number of business teacher preparations. Number of teacher preparations in business education can also be a problem. Greaven (1996) asserts that there are only so many preparations that a business teacher can effectively design and teach in an academic year.

Lack of empirical data. There is a lack of empirical data, according to Schliefer, Crisp, and Held (1996) showing a benefit to students. Student achievement in business education, according to Sturgis (1995) has not been studied to determine the effect of block scheduling.

Responding to Block Scheduling in Business Education

Within the atmosphere of uncertainty about block scheduling and its implementation, business educators can act in several important ways to improve instructional methods, advocate for a block scheduling plan suited to business education, and build stakeholder support for the new scheduling paradigm:

1. Investigate how business education is taught and learned rather than accept habitual methods so that instruction matches the new circumstances of scheduling.
2. Adapt traditional co-curricular organizations to enhance new scheduling models so that students can still benefit from the richness of and the contextual nature of the learning experience they provide.
3. Seek representation on site-based councils dealing with alternative scheduling.
4. Educate themselves on various block-scheduling plans.
5. Involve several stakeholders in the decision to adopt block scheduling. Of special interest to business educators is involvement with district vocational technical education schools, tech prep partners, school-to-work partners, business advisory councils, and student organizations to ensure a smooth transition to the adopted scheduling plan.
6. Develop and participate in staff development about adaptations necessary for block scheduling.
7. Build parental support for block scheduling.
8. Continue open communication with stakeholders to counteract fear and promote acceptance.
9. Create realistic goals and standards of assessment of alternative scheduling plans.
10. Review the time requirements as well as physical endurance and concentration demands to balance skill-building techniques with the endurance limitations of learners.

11. Use instructional time efficiently. The last 30 minutes of class, in particular, should be more than a study hall.
12. Improve career education by using class time to build contextual learning through internships, job shadowing, mentoring, outside speakers, and seminars.
13. Create authentic work environments, such as simulations, cases, and model office.
14. Limit the total numbers of instructor preparations to avoid faculty burnout.

Block scheduling is a major component in contemporary educational reform in our secondary schools. With careful planning, critical thinking, innovative instructional strategies, and consensus building, business educators can strengthen their programs through block scheduling.

References

Bryant, J. G., Jr. & Claxton, D. (1996). Physical education and the four-by four schedule. *The Physical Educator, 53*, 203-9

Canady, R. L. & Rettig, M. D. (1993). Unlocking the lockstep high school schedule. *Phi Delta Kappan, 75*(4), 310-314.

Carroll, J. (1996). Organizing time to support learning. *The School Administrator, 53*(8), 26-30.

Edwards, C. M., Jr. (1995). The 4 X 4 plan. *Educational Leadership, 53*(3), 16-19.

Eineder, D. V. & Bishop, H. L. (1997). Block scheduling the high school: The effects on achievement, behavior, and student - teacher relationships. *NASSP Bulletin, 81*(589), 45-54.

Greaven, D. (1996). Alternative scheduling in marketing education. *Thirteenth Annual Atlantic Coast Business and Marketing Education Conference, USA, 7*, 23-25.

Guskey, T. R. & Kifer, E. (1995). *Block Schedule Restructuring Program Governor Thomas Johnson High School.* Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA. ERIC Document Reproduction Service No. ED384652.

Hackmann, D. G. (1995). Ten guidelines for implementing block scheduling. *Educational Leadership, 53*(3), 24-27.

Jewell, C. S. (1998). Impact of block scheduling on business education in North Carolina. *Business Education Forum, 52*(4), 11-14.

Kramer, S. L. (1997). What we know about block scheduling and its effects on math instruction, part I. *NASSP Bulletin, 81*(586), 18-42.

Kruse, C. A. & Kruse, G. S. (1995). The master schedule and learning: Improving the quality of education. *NASSP Bulletin, 79*(571), 1-8.

Limback, E. R. (1998). Impact of block scheduling on business education in Missouri. *Business Education Forum, 52*(4), 6-10.

Lonardi, Emilie M. (1998). How a block schedule failed. *The Education Digest, 63*(9), 41-6

Matthews, L. J. (1997). Alternative schedules: Blocks to success? *Practitioner, 24*(1), 1-8.

Mistretta, G. M. & Polansky, H. B. (1997). Prisoners of time: implementing a block schedule in the high school. *NASSP Bulletin, 81*(593), 23-31.

Mutter, D. W., Chase, E. & Nichols, W. R. (1997). Evaluation of a 4 X 4 block schedule. *ERS Spectrum 15*(1), 3-8.

Phillips, I. D. (1997). On the block: A hot trend in class scheduling is giving high school educators a whole new way to manage time. *Techniques, 72*(6), 32-35.

Queen, J. A. & Gaskey, K. A. (1997). Steps for improving school climate in block scheduling. *Phi Delta Kappan, 79*(2), 158-161.

Rettig, M. D. & Canady, R. L. (1997). All around the block schedule. *The Education Digest, 62*, 30-41.

Schliefer, J. M., Crisp, M. M. & Held, G. (1996). Alternative scheduling and delivery. In Perreault, J. (Ed.), *Classroom strategies: the Methodology of Business Education* (pp. 54-63). Reston, VA: National Business Education Association.

Schroth, G. & Dixon, J. (1996). The effects of block scheduling on student performance. *The journal of Educational Reform, 5*(4), 472-476.

Shortt, T. L. & Thayer, Y. V. (1999). On the block: How changing time and human-resource management can help students and teachers succeed. *Technos, 8*(4). 29-33.

Sizer, T. (1992). *Horace's School*, New York, NY: Houghton Mifflin.

Skrobarcek, S. A., Chang, H. M., Thompson, C., Johnson, J., Atterberry, R., Westbrook, R. & Manus, A. (1997). Collaboration for instructional improvement: Analyzing the academic impact of a block scheduling plan. *NASSP Bulletin, 81*(589), 104-111.

Staunton, J. (1997). A study of teacher beliefs on the efficacy of block scheduling. *NASSP Bulletin, 81*(593), 73-80.

Staunton, J. & Adams, T. (1997). What Do Teachers in California Have To Say about Block Scheduling? *NASSP Bulletin, 81*(593), 81-84.

Strock, G. E. & Hottenstein, D. S. (1996). The first-year experience : A high school restructures through the Copernican plan. *The School Administrator, 53*(8), 30-33.

Sturgis, J. (1995). *Block scheduling and student achievement.* Paper distributed at the Maine Principals' Association, University of Maine.

Wronkovich, M., Hess, C. A. & Robinson, J. E. (1997). An objective look at math outcomes based on new research into block scheduling. *NASSP Bulletin, 81*(593), 23-32.

Chapter 2

Distance Learning: Challenges and Rewards

Teresa Yohon, Colorado State University

Three principles for general classroom planning according to Blackett and Stanfield (1994) are: (1) plan for a full range of teaching methods, (2) plan for change and flexibility, and (3) focus on the exchange of ideas and acquisition of knowledge. Distance education meets all those characteristics by providing a variety of tools that can be matched to teaching methodologies, a flexible environment, and multiple communication and resource systems. Distance education is becoming part of the educational mainstream because students' needs have changed and the environments in which students operate are more technologically advanced. Additionally, education is moving into a constructivist mode where students need rich contexts for learning and the foci are authentic activities, student collaboration, and reflection, which can be mediated by distance education tools.

Distance education has become a major player in the delivery of graduate-level education, university-level general education courses, and some courses at the high school level. An increasing number of school districts are putting courses and resources on the Web, either to supplement existing curricula, to promote course sharing among schools, or to reach students who are hard to reach (i.e. physically handicapped, rural, or those who can't or won't attend in person). Advanced Placement (AP) courses are moving into a distance education mode to increase student accessibility (Shank, 2000). Because of improved technology, new educational structures called "cyberschools" have arisen to provide a 9th through 12th grade curriculum. Cyberschools tend to use the Internet to support this educational arrangement. An example of a cyberschool is the Department of Education's supported Star Schools Program. Star Schools provide distance education to more than 1.6 million learners annually in the 50 states, the District of Columbia, and U.S. territories.

Despite the growth of distance education in secondary school systems, distance education usage is still difficult because it is based on a group of technologies that is not fully integrated into society and where common standards have not been set. Therefore, it is tough to build the infrastructure to support a high-technology support system. Despite these problems, educators still need to embrace distance education as a mechanism to sustain and promote quality educa-

tion for all students because of its unique attribute for any time, anywhere learning.

Considerations in Making the Transition to Distance Education

Teachers don't need to jump into distance education with both feet. A gradual integration of distance education tools in courses will lead to more sophisticated uses of distance education in the future. In choosing where to start in the distance education realm, teachers need to identify educational objectives to be met, their student characteristics, their technology background, infrastructure support available, and various other considerations.

Educational Objective Identification

Where teachers "start" in using distance education tools depends on the educational objectives to be accomplished. Important questions include why the material is being taught, what students should know and understand, and what students are expected to do with it. Distance education supports knowledge-based learning (facts, concepts, and understanding) as well as active learning (self-directed learning). Knowledge-based learning uses distance education tools such as web-based self- assessments, worksheets, and content presentations. Active learning, based in constructivism, uses more collaborative distance education tools such as discussion groups, chat, and web searches. Both learning types can be integrated into a single distance education "course".

The role that teachers play in the learning process depends on the type of learning taking place. If the educational objective is basic knowledge and understanding, teachers are in control of the learning, with the students being questioned about the material and positive reinforcement being given for "correct" answers. In active learning, teachers observe, coach, and facilitate the learning process while students create meaning. Project-based activities and collaboration among students need to be supported. Obviously each role demands a different distance education strategy.

Whether knowledge-based or active learning is the focus, it is important to sequence the learning of critical concepts, technology skills, and academic skills. Hands-on training with the technology of delivery is critical for both the teachers and the students. It is also important to realistically assess the amount of content or activity that can be effectively delivered. Normally presenting content at a distance is more time consuming then presenting information in the classroom.

Audience Identification

Along with the educational objectives, the students need to be the central focus in determining distance education tools to be used. The students' background, including their learning style, technology skill level, and technology access are important considerations. If distance education strategies are significantly used in a course to support independent learning, students must be self-directed and motivated to learn. Distance education strategies will need to be modified to support student differences.

Technology Background of Instructor

What distance education strategies are utilized will depend on the technology skill of the teacher. To start in distance education, use the more common tools available such as e-mail, items posted on an Internet home page, or discussion groups (via listserv, bulletin board, etc.). As teachers become comfortable using basic distance education tools, additional technology tools can be added.

Infrastructure Support

A dynamic distance learning program depends on a solid infrastructure. Efficient support systems as reliable Internet connections and sufficient hardware and software supports are indispensable for a successful distance education environment. Support personnel could include a web master, instructional services coordinator, and hardware/software specialists.

Infrastructure issues don't stop at the school level. Students also need to have access to adequate technology as well as technical support if hardware or software is not working properly. The key is developing a team approach to support distance education.

Other Important Considerations

Whatever the distance education form, students need to be highly active participants in the instructional event. For example, strategies for student reinforcement, review, repetition, and remediation should to be considered. Short, cohesive statements and direct questions are necessary, recognizing that technical linkages may increase the response time of students. A variety of delivery systems should be integrated for interaction and feedback as time and the teachers' technology skill permit. Collaborative activities need to be carefully structured. If the course is completely online, pre-class study questions and advance organizers encourage critical thinking and informed participation of all students.

Student orientation to distance education tools is desirable. All students need to feel comfortable using the distance education tool. Follow-up on uncertain students is essential in the early stages of the tool's use.

Development of distance education skills and materials takes time. Time is needed to both produce resource materials (printed and online) and to become familiar with the technology to be used.

Getting started is always the hardest part of any new initiative. The Simple Start program at the University of North Carolina at Chapel Hill offers the following advice: (1) start now, (2) begin with something simple, (3) put instructional objectives first, (4) learn by doing, (5) manage yours and your students' expectations, and (6) ask for help.

Linking Pedagogy and Technology Tools

Teaching is more than just the memorization of facts, but includes critical analysis of beliefs and accepted knowledge as viewed through the students' own set of beliefs and knowledge base. Pedagogy, which is the art of teaching, provides for integration of new knowledge into students' frames of reference. These new frames of reference create new perspectives, which are tested in other venues throughout the educational process. Teaching becomes a collaboration process between teachers and students and their peers.

Distance education employs a variety of technology tools to support the learning process. More traditional support materials include study packets, videotapes, tutorials, television, and audio transmission. Today the Internet provides e-mail, newsgroups, listservs, online courses, and video conferencing. Satellite technology and fiber-optic networks also increase the options for live audio and video transmission.

In general, educational goals and objectives should inform the selection of the technology tool(s) to be used. Educational goals can be content-specific (such as how technology changes are affecting the business environment) or more general (such as learning how to work in a team, bridging the classroom to the business world, developing critical thinking skills, and developing time management capabilities). Another way to look at educational goals is to focus on the student performance or outcome that evolves from goal or objective. The educational goal determines the level and type of interactivity (learner to content, learner to teacher, learner to peer) needed, which is turn allows teachers to choose the appropriate technology tool. However, remember that the learning environment, resources available to teachers and students, and student characteristics

moderate technology tool selection. Teachers select the best tool(s) to use given a set of constraints.

An important caveat needs to be mentioned. Teachers don't need and shouldn't use technology tools for teaching every instructional goal. Technology is not always the most appropriate or effective tool in teaching. Diverse approaches to teaching and learning engage students and meet their multiple needs. Teachers need to determine the educational goal, select the instructional method with the greatest impact (project-based learning, discussion, worksheets, tutorials, etc.) and then choose the supporting technology if needed.

To facilitate the selection of technology tools, they need to be described based on their educational value. Available technology tools are divided into three categories: communication tools (as e-mail, chat, and video conferencing), collaborative tools (virtual spaces), and content tools (such as CD-ROM, the Internet, and video sources). These categories are arbitrary; often a technology tool fits into more than one category.

Communication Tools

Since by definition distance education means that teachers are physically separated from the student, communication tools are necessary. Students will interact with content material, the instructor, or their peers, depending on educational goals. An additional function of a communication tool may be parental contact. Online communication affords students a measure of anonymity. Online "visits" offer uneasy or shy students the opportunity to communicate in a more comfortable environment.

E-mail. The most common tool for asynchronous communication is electronic mail or e-mail. The reason for its popularity is its familiar, efficient, and versatile applications. E-mail allows students to communicate with teachers and other students as well as with experts in the field (such as business people). As a form of written communication, e-mail can be an indicator of growth, both in knowledge of content and in progression in grammar, organization, and development. For example, students can submit their writing to teachers and peers, receive feedback, and then rewrite and submit the revisions.

E-mail is incredibly efficient, not only in managing communication, but in keeping track of student interactions. Folders can be developed in which student e-mails can be filed, either by assignment or project. E-mail can be a great tool in documenting students' (or a team's) progress on project-based activities or in

work-based experiences. Other uses for e-mail include: posting of pop quizzes or bonus point questions, e-mail elaboration of in-class questions, e-mailing of assignments and connection to experts.

E-mail discussion groups also can be developed. An e-mail mailing list of students is developed and these students discuss, share, and compare information, observations, and perceptions on a particular topic. For example, students may discuss and gather information on changes in dress in business offices. According to Scare (2000), e-mail discussion groups tend to be more focused and the interaction more intense and rigorous than using a listserv.

If e-mail is an integral part of a teaching strategy, students need to understand that they need to periodically check their e-mail and that this task is not a trivial exercise. "Netiquette" should also be taught. Resources for Netiquette include www.ncsa.uiuc.edu/Edu/ICG and midir.ucd.ie/~cconaty/struct1/html.

Newsgroups. Course discussions can be held using Usenet newsgroups. Usenet is an independent network that is accessible from the Internet and contains thousands of online conversations on a variety of subjects. Once a newsgroup is activated, anyone on UseNet can read the messages and post a response. Despite this limitation, Powers and Dutt (2000) found that shy students were more willing to contribute in this electronic environment versus during a class discussion. The newsgroup also was a place where students contributed information and resources. One key to the success of their newsgroup was that the teachers participated in limited ways, which encouraged students to support each other and to share their expertise.

One downside of newsgroups is that students have to go to Usenet to read course messages versus reading the messages as part of their e-mail system. Therefore, a better choice for an online discussion may be a mailing list, often known as a listserv.

Listserv (or mailing lists). A listserv is a system for relaying an e-mail message to all the e-mail addresses on a mailing list. The site from which the list originates is called the list server. A listserv is a great timesaving device for teachers and students. For example, teachers only have to answer a question once and all students who are subscribed to the mailing list can read the answer. The same is true for the students. Students can write a response and the message then is relayed to everyone on the mailing list. Mailing lists also can be established between students from different schools and with business mentors. Students on a listserv can form a bond where the online "community" helps each "member" answer questions. The downside with a listserv is that students may

send too many messages. To limit the number of messages, teachers can put a fixed number of messages allowed by student participants.

Chat. Chats allow for synchronous (real-time) text-based interaction. When a chat participant types in a response, the completed response is relayed to other chat members. A chat server often offers a variety of chat groups or channels, each serving a particular group of people. A chat is different from e-mail, a listserve, or bulletin board since only people logged on to the chat session can read the responses.

At least two types of Internet chats exist, Internet relay chats (IRC) and web chats. IRCs use special software that is downloaded and installed. IRCs normally offer multiple channels and the ability to have a private conversation. A web chat is done through a web browser. Participants type and send messages in a manner similar to the IRC format.

One challenge of using chat is "organizing" the conversation. While one student is writing a response to one question, other chat members have moved on to other topics. Despite this problem, chat provides opportunities for class discussion and can be implemented even over slow Internet connections.

A second consideration is that unless a time is set for a "chat", chat rooms won't be used because few students will be online at the same time.

Bulletin boards. Bulletin boards are used in threaded discussions where a question is posed and students are expected to respond to that question. However in a threaded discussion, students may respond to the original question or other students' responses. Responses to the original question or to students' responses are indented underneath so a "thread" of discussion can be identified. This threading feature lends itself to the debate of topics as well as archiving the response threads. An advantage of a bulletin board threaded discussion is that students see the relationship between ideas since all responses are maintained on the bulletin board. Responses to well-written questions can show depth of understanding and the synthesis of ideas.

For this tool to be effective, students may need to be encouraged to participate. For example, you may require students to log in at least twice every week. Enter a controversial topic related to the class content each week and request that students discuss it electronically. Another tactic is to have students work with the transcripts of the whole electronic class discussion so they can extract the key issues for the course.

One-way video conferencing. According to Boettcher (2000), data collected by the National Center for Education Statistics for the years 1997-1998 indicated that 47% of distance education in the United States was one-way prerecorded interaction; 54% used two-way interactive video and 58% were Internet courses using asynchronous computer-based instruction. One-way video conferencing typically involved pre-recorded or pre-produced programs distributed by video-based technologies such as broadcast, cable, or satellite. This technology answers the needs of geographically remote schools and for learners with special considerations. Two examples of satellite learning "channels" are Annenberg/CPB Channel (www.learner.org/view) and the Dish Network Education (www.dishnetwork.com).

Two-way instructional television (ITV). ITV allows for viewer interaction, either with a live instructor or with participating student sites. This two-way television with two-way audio capabilities facilitates the teaching in a traditional classroom while at the same time, teaching students in off-site classrooms (Mathews, 1999). Cameras at remote sites allow the teacher to view all participating students. Pedagogically ITV is the closest to a traditional educational setting.

Even though ITV provides a tremendous opportunity for education, sites choosing to interactively participate often need to purchase specialized equipment, facilities, and staffing. Additionally, because of the physical separation between the instructor and the students, special preparation needs to happen prior to class such as practicing in front of a live camera, organizing all materials and visuals before class, and understanding the equipment. During the ITV session, special efforts need to be made to keep the ITV session engaging (such as varied facial expressions and tone of voice), keep lecture content simple and clear, present content in five to ten minute blocks with discussion, maintain a moderate speaking pace, and motivate peer learning and support by encouraging students to work together both in and out of class. Student interaction can be enhanced by designating students at distant sites to lead discussions, clearly defining discussion topics and allowing time for students to prepare responses, and planning for blocks of interaction time (*Distance Education at a Glance-Guide #5, 1995)*.

Interactive Videoconferencing (IV) or NetMeetings. Most IV systems utilize digital video for the transmission of motion images over data networks such as high capacity Integrated Services Digital Networks (ISDN) (*Distance Education at a Glance-Guide #11, 1995)*. Interactive videoconferencing can connect two locations or multiple locations. Depending on equipment, IV can be set up in a small room, in a classroom, or on a computer. Advantages of IV are "real time" visual contact, diverse media support (videos, "white boards", graphics,

etc.) and connections with experts in the field. IV meetings can be particularly effective in situations where a visual and audio representation adds to the understanding of a project. Considerations in using an IV system are similar to those in utilizing two-way instructional TV. Unfortunately the initial cost of the equipment and leasing the transmission lines (ISDN) can be cost prohibitive. For additional information on videoconferencing, go to www.videoconference.com. Schools also can get involved in video conferencing over modem connections using products like White Pine's CU-SeeMe Web (www.wpine.com). White Pine utilizes a small digital video camera and a microphone connected to a computer so that live audio, video, and text chats can be embedded in a standard Web browser and enables on-demand Visual Instant Messaging, Web-based video chat, and live interactive Web events. The costs are affordable (color cameras are about $100.00) but depending upon the Internet connection speed, the video and audio transmission may be garbled or just not available at all. A 28.8 Kbps or better connection is needed for minimal quality full participation. Global SchoolNet Foundation maintains a list of international and United States schools that utilize CU-SeeMe technology (www.gsn.org/cu/index.html). Other software, such as Microsoft NetMeeting and ClassPoint, provides videoconferencing capabilities as well as text-based chat and white boards.

One example of interactive videoconferencing is the partnership between Utah Education Network and US West (*T.H.E. Journal*, 1999). With over 200 videoconferencing locations in Utah, students are connected to Utah's Electronic High School and selected college or university courses, and teachers and parents gain communication tools and resources. Training modules, sample lesson plans, and over 2,000 journals and local newspapers are available online. Benefits of this program are numerous: early graduation for students, rural and remote students have increased availability of courses, and increased opportunities for students who have failed coursework.

The Business Channel utilizes both IV and ITV solutions. The Business Channel (www.pbstbe.com) includes live and on-demand Web programs, certificate courses via satellite and streaming video, and hundreds of hours of satellite seminars enhanced with Web components.

Virtual Learning Environments (VLE). Virtual Learning Environments simulate a real-world setting. Pedagogically this technology tool allows students to interact in realistic ways to realistic problems. Thirst for Knowledge, created at Acadia University, is a $10,000 virtual learning environment (VLE) that simulates the workplace of the Quaker Oats Company (Follows, 1999). Used in an Introductory to Marketing course, the objective is to evaluate the market poten-

tial of new Gatorade projects. Students spend 16 hours "going to work" for Quaker Oats. In this environment, students "walk" through the building, answer the phone, use the computer, and attend meetings. At the end of the VLE session, students write a report recommending a course of action. VLEs allow students to conduct experiments, to make observations, and to have experiences that would not be practical without VLE. VLEs could simulate sales presentations, customer relationships, office situations, and accounting tasks as an on-line audit. The benefits are powerful; students have a clear context in which the learning process takes place, realistic with all the complexities and uncertainty. VLEs support a high-level of critical thinking. With VLEs, learning becomes a personal experience, which allows for a wide range of learning styles.

Collaborative Tools

Virtual spaces. MOOs (Multi-User Dungeon, Object-Oriented) are on-line, real-time, virtual reality environments in which the students take a role (Odasz, 2000). MOOs evolved from MUDs (Multi-User Dungeon), a text-based description of an alternate reality. The most common use of MOOs is the development of a virtual campus or classroom. The AmblerMOO (at Temple University Ambler) includes a public address system, transparency projector, and a chalkboard. The latter two capabilities mimic face-to-face interaction. At the Penn State's MOO, two writers can meet "virtually" to discuss the latest draft of an article. Variations on MOOs have evolved, including a WOO (Web, object-oriented), and many of today's students have played WOO-based games over the Internet.

These virtual spaces may offer new opportunities for conducting classes and seminars. With the hypertextual qualities of text-based virtual realities, many innovative student projects could be developed. "Virtual" parent-teacher conferences and tutoring sessions can be held.

Hsu, Marques, Hamza, and Alhalabi (1999) list ten steps to design a virtual classroom space. Of particular importance are Steps 1 and 2: Assess the needs of the students and necessary conditions to satisfy them (such as support) and estimate the development cost, effort and implications before proceeding. Based on these steps, the development of virtual spaces is probably out of reach of most high schools because of inadequate support levels.

Groupware. Groupware is software used to create and build dynamic environments where people can meet to work on common projects. Groupware is prevalent in business and is beginning to move into the educational environment. Groupware is easier to use than the software used to create virtual spaces.

Educational groupware tends to include everything needed for online instruction—meeting rooms, online video capacity, communication tools such as discussion groups, chat, e-mail, student interaction places, and bulletin boards. With Discourse Technologies's (www.discourse.com) Discourse GroupWare Classroom, students and teachers are connected through the computer network. Other groupware-like software options are FirstClass (www.education.softarc.com), Lotus Learning Space, (www.lotus.com/home.nsf/welcome/learnspace/), WebBoard (www.webboard.com) and WebCT (www.webct.com).

Content Tools

Full motion video. Stanford University's (CA) program Stanford Online offers courses on-demand via streaming video (DiPaolo, 1999). The problem with streaming video over the Internet is that it consumes so much bandwidth. Therefore many universities use videotapes and satellite broadcasts for distance courses versus video over the Internet. However, new software such as Microsoft Media Server (formerly MS NetShow) aids the streaming of video, audio, text, and graphics over the Internet by using video compression technology. With this technology, lectures and seminars can be broadcast live or made available within one or two hours of each class. When MS Media Server is used, students see a video window on the computer screen, inside a standard Internet browser. Next to the video window, the Web page houses a larger window displaying accompanying graphics and text. The larger window also could contain outlines, notes, slides, or simulations. When students choose a topic in the table of content, the appropriate video and graphics are presented. Live interaction with teachers is also available. The biggest problem with this technology is the storage of images, video, and text for student use.

CD-ROM. CD-ROM stands for compact disc read only memory. Data, video, text, pictures and whatever else stored on the CD cannot be erased. A CD-ROM holds about 600 megabytes of information, which is significant compared to 1.4 megabytes of space on a 3.5" diskette. The major disadvantage of a CD is the amount of time it takes to load an image or video from the CD into the computer.

The use of CD-ROMs to deliver content, support remediation, or extend learning is educationally sound. Well-designed CD-ROMs allow students to explore a topic in a nonlinear fashion suited to students' needs, complete a variety of exercises and experiences to reinforce and extent the content, and allow students to experience things visually through videos and animations. These advantages can also be disadvantages as some students may have trouble focusing on the

content because of all the choices and students may not be able to make effective decisions based on their learning needs.

Content-based CD-ROMs are available in most academic areas. Most business education CD-ROMs provide either simulated experiences via a case problem scenario, a step-by-step tutorial of how to complete a business task (such as develop an advertisement), or support materials (such as examples of contracts, and sales letters). CD-ROMs are often integrated into the business classroom either as support material or a tool to help a student understand a concept.

Online courses. Courses that are completely online with no face-to-face meetings are often called virtual courses. Polyson, Saltzberg, and Godwin-Jones (1996) identified eight common components of quality course Web sites: (1) on-line syllabus, (2) personal home page, (3) interactivity in the form of chat, e-mail, and/or discussion groups, (4) assignments to be submitted via the Web, (5) an announcement section, (6) testing modules, (7) course management features such as on-line grade books, and (8) course content sections. Online course building software is listed under Groupware.

Online course development occurs in higher education but it is moving down into secondary education, especially to support rural areas and to make available "specialized" courses such as Advanced Placement courses (AP). Online high schools called "cyberschools" are being developed.

One example of online curriculum is the Oncourse project at Indiana University that provides a framework for a "Dynamic Integrated Web Environment" for every course offered at the university (Jafari, 1999). Courses were not completely put online at once; instead, a gradual progression from a hybrid (in-class plus distance learning) curriculum to a full distance education course was followed. The online nature of courses facilitated the posting and distribution of information and resources as well as extended resources available by using hyperlinks to the Internet and to digital libraries.

Internet. Predictions are that by 2005, close to 100% of all public schools will have Internet capability, though in some cases, only one to two connections. Wood (1999) states that the greatest obstacle to the integration of the Internet into the classroom is the lack of how the Internet can be used educationally. He identifies at least seven ways that the Internet can be used by teachers: (1) acquiring skills (including collaborative skills), (2) virtual touring, (3) locating information, (4) problem solving, (5) analyzing data, (6) researching, and (7) exchanging and publishing information.

Teachers often decided to develop web sites to support their classes. Feedback from teachers who developed web sites emphasized the need to design web pages that are colorful, simple, easy to navigate, and consistent (Warner & Akins, 1999). Ackermann (1996) suggests the inclusion of the following items on a class home page: course and instructor information, class communication options, assignment and test information, lecture notes and handouts, and reference materials. Additionally the site needs to address the specific needs of the students, provide links for help, research, remediation, demonstrations and examples of student work, as well as schedules and reminders for homework, projects, and exams. Educational web sites often require a huge investment of time up front, but the timesaving in the end can be phenomenal.

Teachers who use the Internet are no longer tied to the textbook and its interpretation of events. The Internet also allows for the integration of current materials. Once teachers become proficient with their own web sites, they teach their students to create their own web pages as a group collaborative activity and a means of performance-based assessment.

A major contribution of the Internet is its support of project-based activities as Webquest, Cyberfair, and Thinkquest. Webquest is a format for an online activity for either the traditional classroom or the online classroom, which involves both individual research and creation of a group report or product. Webquests can be short term, one to three class periods, or longer term as for an entire semester. Extensive training materials exist for creating Webquest activities, as well as past Webquests that can be modified for individual classroom use. To learn more about Webquests, go to the Webquest homepage http://edweb.sdsu.edu/webquest/webquest.html and explore the "Collections" and "Training" resources. Another tutorial on designing WebQuests can be found at http://edweb.sdsu.edu/webquest/materials.htm.

Web tours can be generated using TourMaker Personal/Educational Version software, which is downloadable. This software allows teachers to create Web tours using pre-designed Web pages and text. Web sites and resources from hypertext links can be shown and comments can be added about each site. The program requires a minimum of Windows 95 and Explorer 4.0.

The Internet is heavily used to support student research. Clear research procedures are necessary to keep students focused. Lightspan PageOne (www.lightspan.com), helps teachers create their own classroom resource page in about ten minutes by using simple forms and templates. No knowledge of HTML or web design is needed.

For a broader Internet tool, HighWired (www.highwired.com) provides five free customizable tools: the guidance counselor tool (college, career, and test information available for student and parent), classroom online (post assignments, tests, projects, collaboration tools, and personal web pages), as well as templates for student activities, school sports, and the school paper. The site www.wwwrrr.net provides an easy-to-use Internet program that allows schools to publish information online for parents and students.

Web lectures (Brusilovsky, 2000) include many of the Internet capabilities listed above but also include just-in-time lectures, which can consist of slides with audio/video narration and sequential navigational tools. Video and audio are done in small chucks for slide synchronization. Two popular features included in these Web lectures are the white-board (a teacher's on-board writing is recorded for online publication) and attachments. The goals for Web lectures are to: (1) develop the ability to replay the lecture, (2) support "on-the-fly" authoring, or (3) build archives aimed at distance education.

During the past five years, multimedia and video applications of the Internet have evolved out of the experimental realm, but the Internet capability at all schools or in all communities cannot support high-end, real-time video and audio. Future Internet initiatives include the Next Generation Internet Initiative (which is focused on the next generation of networking technologies) and Internet2 (which supports development in Internet infrastructure, tools, and applications specifically for higher education).

Distance Education Research and Its Effect on Student Learning

Research on distance education and its effect on student learning has been collected since 1928. The majority of the studies have found that distance education does not significantly affect student learning. Is that a problem? No, because the reason for distance education may not be an increase in learning but increased collaboration, more connections within the community, or a flexible learning environment. Additionally studies suggest that media (in this case, distance learning) do not influence learning under any conditions. However, it is important to note that the use of distance education does not negatively affect student learning. Technology may not affect how well people learn, but there is no denying that technology used in distance education does affect the efficiency with which information is delivered. A brief summary of some of the research on distance education is given below. This information was mostly pulled from two web sites: http://cuda.teleeducation.nb.ca/nosignificantdifference/ and http://cuda.teleeducation.nb.ca/significantdifference/

Differences in Learning Due to Distance Education

Not many studies show that distance education makes a difference in student learning. Dutton, Dutton, and Perry (1999) found in their study that the group who completed their course utilizing online resources did significantly better than students who only attended lectures. According to Morrissey (1998), management case study groups with groupware significantly outperformed traditional face-to-face groups.

According to a study by CAST (www.cast.org/publications/stsstudy), inclusion of online resources (including the Scholastic Network) significantly increased elementary students' measurements on information management, communication, and presentation of ideas. This study indicated that using online resources helped students become critical thinkers and increased their ability to find information and effectively express their new knowledge. Teachers also indicated that they had increased communication with the students' parents.

According to a recent 1998 Educational Testing Service Report, computers when properly used helped to develop critical thinking skills in students and contributed to significant gains in math achievement. However, when computers were used for drill and practice, computer use was unrelated to achievement and in some cases was harmful (Charp, 1999).

No Significant Differences in Learning Due to Distance Education

Based on grade distribution, many well-documented studies showed that students do as well in a distance learning atmosphere as they do in a physical classroom atmosphere. Reports that compared distance education and traditional instruction indicated that distance education could be as effectively as traditional methods if (1) the methods used are appropriate to the instructional objectives, (2) student-to-student interaction existed, and (3) teacher feedback was ongoing (Charp, 1999). So distance education often provides the same level of learning success as more traditional teaching methodologies.

Dobrin (1999) found that 85% of faculty felt that student learning outcomes in online education were comparable to or better then those found in face-to-face classrooms. Schulman and Sims' study (1999) demonstrated that the learning of online students was equal to the learning of in-class students. When virtual lectures were used in place of traditional delivery methods, no significant difference in attainment level was found in the end-of-year tests. Cleveland State University (1998) found no evidence of either a positive or a negative effect on

grades due to the use of videoconferencing. In the WESTNET Program where interactive television was used, the proportion of students earning grades of "A" or "B" at the sending and receiving sites were not statistically significant at the 5 percent level.

Challenges and Rewards of Distance Education

Challenges and rewards exist for both teachers and students in distance education. Distance education requires different ways to connection with students and to organize a class. Summaries of challenges and rewards for both teachers and students are listed below.

Challenges for a Teacher

1. The biggest challenge for teachers is finding development time for distance education. It is more labor intensive to teach a distance class, due to increased preparation time and additional time needed to manage online courses or distance education tools. Often times, teachers are not rewarded for their increased time commitment.
2. Successful distance education requires increased levels of support and training for teachers.
3. Maintaining sufficient student contact so that student needs are met is more difficult if face-to-face time is limited or nonexistent. Learning problems of students can remain masked in an online environment. Teachers need to ensure that students understand the material and perform the work. Efforts need to be extended to mollify the impersonal nature of an online program.
4. Adequate reflection, conversation and intellectual dialogue is more difficult to support in a virtual environment.
5. Logistic problems surround the testing function and student honesty. How do you make sure the student is working independently?
6. The teachers' role will change with the advent of distance education. One prediction is that teaching of traditional academic subjects, first in high school and then in elementary school, will be increasingly done via online courses (Schank, 2000). Teachers' roles will become more interpersonal in nature, providing personal one-on-one tutoring and teaching interpersonal and team building skills. Teachers will increasingly become facilitators of the learning process. Technology will be used as a tool in projects and activities.
7. The educational institution in which teachers operate must support adequate bandwidth for high-end technology tools including video, virtual spaces, and chat.

Challenges for a Student

1. While it is true that students do as well in distance learning as in the classroom, not all students will learn well in this environment. The student must have the characteristics of being a self-starter, self-disciplined, technologically literate, and feel comfortable in meeting students and faculty in a virtual environment. Students need to be able to follow specified guidelines and to work independently. Procrastination is not a virtue.
2. Some students miss the face-to-face contact with their peers and teachers. These students may feel that not enough communication or thoughtful communication goes on within the online environment to satisfy their need for connections.
3. Lack of technology access by students can seriously limit their participation levels in online and virtual environments. Modem-based systems are often not adequate for multimedia today.
4. Students may lack the needed level of technology literacy.

Rewards

Despite the challenges of distance education for teachers, the ability to reach students in different ways, opportunities for new teaching and learning models, enriched educational experiences for students, and the ability to reach isolated students are definite rewards for embracing distance education. Distance education also provides unmeasured benefits as increased parental involvement, student exposure to new technologies, and the ability to reach under-served students.

Students also gain in a distance education environment. On-demand education; flexible learning experiences; increased contact with teachers via tools such as e-mail, chat, and discussion groups; and more individualized attention are definite pluses for students.

Summary

Effective distance education means that every student has the opportunity to become an active learner, collaborating fully in the development of projects and ideas with their peers. Proper use of distance education tools increases the power of education as more student "voices" are heard and teachers become more committed to decentralized, project-based classrooms.

References

Ackermann, E. (1996). Tools for teaching: The World Wide Web and a web browser. [On-line] Available: (www.mwc.edu/ernie/facacad/WWW-Teaching.html)

Blackett, A. & Stanfield, B. (1994). A planner's guide to tomorrow's classrooms. *Planning for Higher Education, 22*(3), 25-31.

Boettcher, J. V. (2000). The state of distance education in the U.S.: Surprising realities. *Syllabus, 13*(7), 36-40.

Brusilovsky, P. (2000). Web lectures: Electronic presentations in web-based instruction. *Syllabus, 13*(5), 18-23.

A case study in the benefits and costs of an interactive television network. (1998). The WESTNET Program. [On-line]. Available: (www.calstate.edu/special_projects/)

Charp, S. (1999). Classrooms of Tomorrow. *T.H.E. Jounral, 26*(6), 4.

Charp, S. (1999). Distance education. *T.H.E. Journal, 27*(2), 6-8.

DiPaolo, A. (1999). Stanford learning: Worldwide availability on-demand at Stanford Online. *T.H.E. Journal, 27*(5), 16-18.

Distance education at a glance. (1995). Various guides available. Engineering Outreach, University of Idaho. [On-line]. (www.uidaho.edu/evo/distglan.html).

Dobrin, J. (1999). Who's teaching online. *ITPE News, 2*(12), 6-7.

Dutton, J., Dutton, M. & Perry, J. (1999). *Do online students perform as well as traditional students?* Submitted for publication, North Carolina State University.

Educational Testing Service Report. (1998). *Does it compute? The Relationship between Educational Technology and Student Achievement in Mathematics.* [On-line]. Available: (www.ets.org/research)

Follows, S. B. (1999). Virtual learning environments. *T.H.E. Journal, 27*(4), 100-106.

Hsu, S., Marques, O., Hamza, M. K., and Alhalabi, B. (1999). How to design a virtual classroom. *T.H.E. Journal, 27*(2), 96-109.

Jafari, A. (1999). Training today's teachers for tomorrow's classrooms. *T.H.E. Journal, 27*(3), 58-66.

Lewis, L., Farris, E., & Alexander, D. (1997). Distance education in higher education. Statistical Analysis Report. Postsecondary Education. (Report No. NCES-98-062). Westat, Inc.: Rockville, MD. (ERIC Document No. ED 413 829).

The Master's degrees in social work at Cleveland State University and the University of Akron: A case study of the benefits and costs of a joint degree program offered via videoconferencing. (1998.) Cleveland State University. [On-line]. Available: (www.calstate.edu/special_projects/mediated_instr/Ohio)

Matthews, D. (1999). The origins of distance education and its use in the United States. *T.H.E. Journal, 27*(2), 54-67.

Morrissey, C. A. (1998). *The impact of the Internet on management education: What the research shows*. Pepperdine University. [On-line]. Available: (http://horizon.unc.edu/TS/cases/1998-06.asp)

Odasz, J. (2000, February 23). *Using the top ten Internet collaborative tools for K12 education.* Lone Eagle Consulting. [On-line]. Available: http://lone-eagles.com/articles/tencollab.htm.

Polyson, Saltzberg, & Godwin-Jones. (1996). A practical guide to teaching with the World Wide Web, *Syllabus, 10*(2), 12-16.

Powers, S. M. & Dutt, K. M. (2000, March1). *Expanding class discussion beyond the classroom walls*. [On-line]. Available: (horizon.unc.edu/projects/monograph/CD/Professional_Schools/Powers.asp).

The role of online communications in schools: A national study. (2000, March 1). Center for Applied Special Technology. [On-line]. Available: (www.cast.org/publications/stsstudy)

Scarce, Rik. (2000, March 1). *Using electronic mail discussion groups to enhance student's critical thinking skills*. [On-line]. Available: (http://horizon.unc.edu/projects/monograph/CD/Social_Sciences/Scarce.asp).

Schulman, A. H. and Sims, R. L. (1999). Nova Southeastern University. *T.H.E. Journal, 26*(11), 54-56.

Shank, R. C. (2000). A vision of education for the 21st century. *T.H.E. Journal, 27*(6), 42-45.

Smeaton, A. and Keogh, G. (1999). An analysis of the use of virtual delivery of undergraduate lectures. *Computers and Education, 32*, 83-94.

Warner, M. & Akins, M. (1999). Training today's teachers for tomorrow's classrooms. *T.H.E. Journal, 27*(3), 118-122.

Wood, R. E. (1999). Beyond the electronic reserve shelf: Pedagogical possibilities and resources in Web-enhanced courses. *Syllabus, 13*(4), 54-56.

U.S. West and Utah education network brings the Internet and Video-based education to Utah Students. (1999). *T.H.E. Journal, 27*(4), 20-22.

Chapter 3

Developing and Delivering an Interactive Video Course

Diane C. Davis, Southern Illinois University
H. Pauletta Morse, Southern Illinois University

History and Definition of Distance Learning

Distance learning can be traced back as early as the 1840s when Sir Issac Pitman, the inventor of shorthand, introduced the idea of delivering shorthand instruction by mail long before the television, let alone the computer, came into being. Therefore, distance education is not a new phenomenon. By the mid-1980s, in the U.S., there were over 300,000 students receiving instruction via distance education through university taught courses (Matthews, 1999). With the advancement of technology and the growth of the world wide web, cable television, satellite transmission, email, videoconferencing, and voice mail, distance education has taken off like a rocket. Over the years it has been considered as "a movement that sought not so much to challenge or change the structure of higher learning, but to extend the traditional university and to overcome its inherent problems of scarcity and exclusivity" (Matthews, 1999 p. 56). In other words, it is a way for the university to increase enrollment and to reach out to students by offering the opportunity to learn by providing instruction outside of the traditional classroom. Distance education, though, is not limited just to higher education; several states, especially those with large numbers of rural communities, are also installing distance learning classrooms in their high schools.

Several definitions of distance education have surfaced in the last few years; in fact, there are at least as many definitions as there are types of distance learning. Simply put, distance education is a planned, teaching learning experience involving a variety of technologies to facilitate learning when the students and instructor are separated by a physical distance. According to Virginia Steiner of the Distance Learning Resource Network, "Distance education is instructional delivery that does not constrain the student to be physically present in the same location as the instructor. Historically, distance education meant correspondence study. Today, audio, video, and computer technologies are more common delivery modes" (Distance Education Clearinghouse, 1999).

Even though there are many definitions and forms of distance learning, it often can be divided into the following two categories: (1) synchronous which means there is realtime communication with fixed meeting times and places or (2) asynchronous which means there is no fixed time or location in which the learning takes place, and the student is not in communication with the instructor or other students at the same time. It is also important to note that whether the form is synchronous or asynchronous, there is an increase in the use of the Internet and web-based materials.

Although synchronous learning can technically be done online through the Internet with chat rooms and virtual office hours where students and teachers can communicate at the same time, this section will focus on the type of synchronous learning referred to as interactive video in which the instructor not only teaches the course to students in a classroom at the regular school site, but also has students at remote sites. This type of distance learning uses telecommunications technology to transmit and receive voice, video, and data so students and teachers can interact among each other.

Research Regarding the Effectiveness of Distance Learning

Instead of being an alternative form of education, distance education has become mainstream. According to Charp (1999, p. 6), "over 300 universities and colleges, all fully accredited, now offer degrees with approximately 750 different fields through distance education. Although the amount of research on distance education was limited in the past, more and more research has been conducted recently to evaluate this new method of learning. Much of the research shows there is no significant difference between student learning in the traditional classroom and learning which takes place at a distance (Dominguez & Ridley, 1999; Wade, 1999; Merisotis & Phipps, 1999). However, since there are many different methods of distance education, the studies and findings must be explained in detail to identify the type of distance learning that is being researched, such as whether or not it relates to synchronous learning using interactive video or online learning in which there is no face-to-face instruction taking place. Reviews of research comparing effectiveness of educational television and face-to-face instruction have found no or small differences in student achievement (Wetzel, Radtke, & Stern, 1994), and studies comparing performance of students given interactive video instruction and those with face-to-face instruction found similar results (Storck & Sproull, 1995). A study conducted by Boling and Robinson (1999) was designed to evaluate how lecture-based distance education could best be supplemented with various learning activities. They

divided all undergraduate volunteers into one of three groups of post-distance-education lecture activities; these groups were (1) individual study, (2) cooperative learning, and (3) interactive multimedia. They found that those in the interactive multimedia group enjoyed the learning activity more than the cooperative learning and individual study groups. The researchers, however, found that the cooperative learning group learned the most (Boling & Robinson, 1999). Again, while still limited, some educational research has shown distance learning to be beneficial in improving both student achievement and interest levels (Souder, 1993). However, according to 16 professors at the University of Illinois, "distance education will not be the gold mine that some administrators imagine . . . because providing high-quality instruction is more costly and time-consuming on the Internet than in a traditional classroom" (Young, 2000, p. A48). The report, produced by this group at the University of Illinois, who brought in guest speakers from across the United States, studied literature about the effectiveness of online teaching, and met regularly to discuss the issues, "offers a mixed review of online education, arguing that it 'shows both promise and peril'" (Young, 2000, p. A48).

Another concern is that there are shortcomings to some of the research when only the following three main measures of the effectiveness of distance education are examined: (1) student outcomes, such as grades and test scores, (2) student attitudes about learning through distance education, and (3) overall student satisfaction toward distance learning. The shortcomings, according to Merisotis and Phipps (1999) are: (1) much of the research does not control for extraneous variables, (2) most of the studies do not use randomly selected subjects, (3) the validity and reliability of the instruments used to measure student outcomes and attitudes are questionable, and (4) many do not adequately control for the feelings and attitudes of the students and faculty.

As the research continues to be conducted and educators work to determine the actual effectiveness of distance learning, the technology continues to advance. Therefore, educators are constantly being encouraged to explore and implement the many issues regarding electronic methods of teaching. It is important not to lose sight, however, of the basic teaching/learning principles and to realize that there are many different learning styles represented by the students. Some students do not adjust well to technology, especially if left on their own or are required to complete an entire course online without some type of face-to-face interaction with the instructor. Many forms of distance learning, as already stated, use multimedia. According to Webster and Hackley (1997, p. 1283), "A typical distance learning implementation may utilize information technology to

provide audio, video, and graphic links between two or more sites, therefore using multimedia for communication." Interactive video provides a positive way of presenting material to students at local and remote sites, and at the same time ensuring that students have interaction with the instructor. The interactive video course may or may not include the use of presentation software or use of web pages and the Internet, but it provides an option between the traditional classroom and a totally online asynchronous course. The key is that the students are learning through interaction with and among students and the teacher.

Advantages and Disadvantages

Advantages of distance learning primarily center around the idea that the learner can receive the instruction without having to travel to or be present at the school itself. "Benefits to the student include: increased access to higher education, flexible scheduling of personal time, convenient location, individualized attention by the instructor, less travel, and increased time to think about and respond to questions posed by the instructor" (Matthews, 1999, p. 60). The advantage of interactive video is that the students have the best of both worlds—they do not have to travel to the main location, but they still have an opportunity to interact with the instructor and other students (from various sites), and it provides a medium to encourage nontraditional students to continue their learning. The institution also benefits from distance learning which "increases enrollment, offers a new level of communication with students, requires the university to keep abreast of new technology, and signals the public that the institution is forward thinking and technologically advanced" (Matthews, 1999, p. 62).

The disadvantages vary depending on the method of distance learning that is incorporated, but some disadvantages of interactive video include: (1) the dependence on the technology which sometimes does cause problems when the equipment or communication links are not operating properly, (2) the immense time it takes to prepare and administer a distance learning course, and (3) the problems associated with the coordination that must take place between all sites, such as compatibility between equipment at different locations, need for facilitators at all sites, interaction with large groups at multiple sites, distributions of handouts, and administration of tests. Possible disadvantages might also include: "cost of entry, cost of educational materials, labor insensitivity, need for staff training, cost to the student, inadequate infrastructure, and inaccessible libraries" (Matthews, 1999, p. 62). In some methods of distance learning, there is a great deal of expectation on the students to be independent learners and self motivators when they have no face-to-face communication with the instructor.

Concerns that might be disadvantages with asynchronous online courses, such as getting to know and maintain sufficient contact with students at remote sites and the inadequate opportunity for students to interact and ask questions as a group, however, are not issues with interactive video. Therefore, as stated earlier, interactive video is a form of learning that takes advantage of the benefits of the traditional classroom as well as learning from a distance. To further the success of the interactive video course, a visit to the remote site once or twice a semester, if possible, allows the instructor the opportunity to see the equipment and facilities utilized by students at the remote site and to meet the students in person.

Challenges

One of the greatest values of using interactive distance learning is that it offers a relatively cost effective way to deliver specialized instruction to a remote site of students who for various reasons may otherwise not have the opportunity to obtain such instruction. However, before a distance learning course can be implemented, there are many factors that must be taken into consideration. The challenges of offering courses through distance learning can be broken down into two major categories—administrative and instructional—with some overlap in the two areas.

Administrative Challenges

Many institutions, especially large universities, have a specific person or department assigned to coordinate the distance learning programs and to take care of the administrative functions. In those that do not, the instructor might have to deal more with the administrative tasks as well as the tedious aspects of development and delivery of the course.

Administratively, some of the issues in providing distance education are selecting and marketing courses that will meet the needs of the students, determining the format and method for delivery of the course, establishing suitable sites, establishing connections and equipment rooms for interactive video equipment, arranging appropriate schedules, and articulating with other institutions. According to Charp (1999, p. 6), "a growing number of institutions are accepting each other's distance education courses, making it easier for students to fulfill their institution's requirements." Administrators see the benefits of adopting interactive video courses "because it facilitates the sharing of costs, information, and expertise among multiple sites while providing additional educational opportunities for distant or disadvantaged locations" (Webster & Hackley, 1997,

p. 1282). It also introduces students to the similar technologies they will use in business and industry such as videoconferencing which is a combination of audio, video, and networking technology that allows individuals at different locations to engage in synchronous interaction with each other.

As previously mentioned, a major factor or administrative challenge is cost. Administrative concerns that relate to costs to the institution include the fact that the infrastructure is not adequate for many schools; and in order to offer an interactive course, there must be appropriate equipment at the site and a nearby location or remote site. Many times there must be large investments in connection costs, computer networks, video equipment, remote libraries, ongoing technical support, personnel, and program development. In order to offer interactive video courses there must be at least two sites with the necessary equipment; the rooms must be available at the same time; and there must also be students who are willing to try this type of instructional delivery at those sites. Therefore, institutions must work together. "When institutions commit to significant organization changes, online learning becomes cost effective" (Charp, 1999, p. 6).

Administrators must also determine what type of technical, financial, and other types of support will be provided to faculty. Some questions to be asked include: Will faculty be given release time to develop and/or teach a course? Will they have student assistants? Will they be given additional pay or recognition toward tenure or promotion? Will special training programs be developed for in-house training? The need to provide training for instructors and facilitators is essential as they must know how to use the technology and how to coordinate activities taking place in more than one classroom at the same time.

Instructional Challenges

Along with administrative challenges there are many instructional challenges. These include: (1) planning the design and implementation of the course; (2) developing the instructional materials; (3) modifying the teaching methodology; (4) obtaining training on the equipment in the "distance learning classroom"; (5) preparing the students for the new approach to learning; (6) teaching, and at the same time, coordinating all of the distance learning components; and (7) administering tests and managing the evaluation process; and (8) evaluating the methods, technologies, and facilities. For success in distance learning programs, both students and instructors need preparation and training. This training must include how to operate the instructor and student camera, the document camera and slide projector, and the audio controls. The instructor must learn

how to use the specialized touch screens to control the cameras which determine what views (teacher, students, or documents) are visible at each site. For example, the instructor (if no facilitator is available) must learn how to focus the camera on the student who is speaking so students at other sites can view the speaker and at the same time listen to the comment being made by the student. Then the instructor must focus the camera back at the same time a response is formulated. In fact, this is the reason why many instructors insist on a facilitator who can coordinate these activities while the instructor concentrates on teaching. Other instructional challenges are: (1) knowing the room setup at the remote site, coordinating school calendars at both sites, (2) communicating with remote site proctors regarding tests and exam schedules, (3) making arrangements for getting class assignments, (4) establishing procedures and times for students and the instructor to interact outside of class through email or telephone.

Challenges to instructors in preparing students for this method of delivery include: (1) communicating to students in the classroom and at the remote site the concept of distance education and the technology involved, (2) explaining to students the importance of being patient when the equipment is not working or there is a time lapse to get the equipment in operation, (3) instilling in students the need to become more independent learners, and (4) providing motivation to students to help master the course content. Instructors, on the other hand, may have to shift their method of delivery. The emphasis must be learner-centered as opposed to instructor-centered. If the class is strictly lecture, adding technology will not necessarily enhance the class. "There is much more to distance education than technology. Instructors must know how to do it" (Kearsley, 1998, p. 22). This method of teaching is different than the traditional classroom teaching, and it requires different presentation skills and teaching strategies. Okula (1999) summarizes suggestions from various sources for an instructor whose classroom is expanded to remote places through interactive video. Some of these include: (1) change activities often and provide variety, (2) plant or direct questions to a specific student and do not wait for volunteers, (3) look into the camera often to make sure the students at the remote sites are actively participating, (4) provide an orientation to students in the use of technology, (5) make contingency plans if the technology fails, and (6) make arrangements in advance for administering tests.

"The largest component of online cost is faculty time" (Charp, 1999, p. 6). Faculty spend as much and often more time managing an online or interactive video course than a traditional one. The number of hours spent responding to individual email messages and keying in evaluative responses to homework papers

often takes much longer than just reviewing the assignment in class as a group. Also, "experience has shown that initially it may take eight to ten hours of preparation time for each 50-minute class session" using the interactive video method. (Junk & Fox, 1998, p. 68).

These are just a few of the many challenges that administrators, instructors, and students will face when they decide to get involved with interactive video as a method of instruction. Others challenges will be discussed in the following sections which include processes and procedures instructors go through as they plan, develop, and implement the course.

Planning and Development of the Interactive Video Course

Establishment of Goals and Objectives

In planning and developing an interactive video course, it is essential to develop clear goals, measurable objectives, and planned activities before instruction begins. Many factors must be considered when developing the goals and objectives including the type and size of audience to whom the instruction will be given, the location(s) to which the courses will be delivered, the specific content of the course, the methodology, and types and format of evaluation.

In relation to the type of audience and location, it must be determined whether or not the course will be provided to individuals at just one other location or if there will be multiple remote sites. If there is more than one site, the instructor must be able to coordinate communications and manage people and equipment at all locations. Another point that many instructors may not even think about is the possibility of differing schedules at the various sites. In other words, some institutions and businesses may have different holidays and school breaks than those of the main site. Plans must be made ahead of time to handle these situations.

Another area in which objectives must be established is in relation to the content. In most cases it will follow the same as in a traditional course. Some of the most difficult objectives to determine will be those relating to the instructional and delivery methods the instructor wishes to incorporate. Some questions that will need to be answered will include: Will presentation graphics be used? Will web pages be used and other web-based instructional tools or Internet resources? How will handouts be distributed? How will tests be administered? Once most of these questions have been answered, it is time to make more specific decisions about the instructional materials and methodologies used as well as the classroom, resource, and test management procedures to be followed.

Development of Instructional Materials

As stated above, decisions need to be made regarding the method of instruction and the instructional materials to be used. One common method is to incorporate multimedia through the use of presentation graphics software such as PowerPoint.

The use of presentation graphics software to present course material is becoming more and more common and is a very effective method of presentation for interactive video courses. This provides the students with visuals to follow as the instructor is presenting the material. The camera in distance learning rooms can be moved to focus on the instructor, the multimedia presentation, or the students in the room. Most distance learning classrooms also have a document camera which can be used to show all types of pictures, graphs, or even small objects. In other words, a picture in a book or a magazine, as well as other small items, can be placed on the camera document panel (which works like an overhead) to enlarge and project the image on the monitor at the local and remote site. The use of multimedia presentations provides variation for students with different learning styles. Handouts of the slides or the outline of the presentation can also be made available to students to study on their own or to use as the material is presented.

The use of email, bulletin boards, and/or chat rooms provides additional methods for communication between instructor and student, but they are not required. Although each of these communication methods takes additional time on the instructor's part, the concept follows one of the most important principles of good teaching practice which is to encourage interaction between students and faculty. This is essential in any type of distance learning course. When the students are not at the main site, it is even more difficult to maintain this interaction. The instructor can also decide whether or not web-based materials will be an addition to the interactive video course. These may range from simply providing a place to access class handouts, such as the syllabus and assignments, to providing copies of class notes and outlines of PowerPoint presentations, or even downloading the PowerPoint presentations themselves.

If the interactive video course does have a web-based component with many of these items, it could eventually be converted to an online synchronous course. In fact, this is what occurred with a course developed by one of the authors. The course is offered to students on campus as a traditional course; it is offered through the distance learning component to students off campus through the interactive video; and it is also offered on a trial basis to students on campus

who wish to take it online and complete the course without attending the regularly scheduled class meetings. Of course, these students also take tests online and send all assignments through email. Web pages are used in all three options (the traditional course, the interactive video distance learning course, and the asynchronous online course). The software used for the web-based materials is WebCT, a popular web-based course platform which is presently used by instructors at colleges and universities throughout the country.

When developing instructional materials and looking at new methods of technology, educators cannot lose sight of what is best for the students in helping them achieve their goals. It is important to match a particular approach or instructional method with the appropriate technology. "Care should be taken to avoid allowing the novelty of technology to drive decisions regarding the most appropriate delivery mode for distance education programs, overshadowing the more important decisions regarding curriculum and instructional quality" (Potashnik & Capper, 1998, p. 43). Even though today's methods of delivery have been enhanced by technology, the principles of learning as written by Popham, Schrag, and Blockhus (1975) are still essential and must be considered when developing instructional materials and presenting a distance learning course. Along with these well known learning principles in business education, other principles emphasized by educators are the "Seven Principles for Good Practice in Undergraduate Education" (Chizmar & Walbert, 1999; Merisotis & Phipps, 1999). Merisotis and Phipps (1999) explain that these principles written by Chickering and Gamson (1987) were revived nearly a decade later by Chickering and Ehrmann (1996) in relation to using them with new communication and information technologies to enhance the teaching/learning process. These principles are: (1) encourage contacts between students and faculty, (2) develop reciprocity and cooperation among students, (3) use active learning techniques, (4) give prompt feedback, (5) emphasize time-on-task, (6) communicate high expectations, and (7) respect diverse talents and ways of learning (Merisotis and Phipps, 1999). These principles are used in the development of the instructional materials as well as in the management of classroom activities.

Classroom and Resource Management

Classroom management is essential at both sites. Although most schools, especially universities, should have a distance learning administrator who will coordinate these issues, it is important for the instructor to check the equipment and facilities in the room before class begins. Most instructors will want to have a site facilitator who will control the camera, although some may wish to have complete control themselves. It should be pointed out that it is difficult to main-

tain the mind set to call on the student who is speaking and at the same time to use the touch screen to focus the camera on that student and to mentally prepare a response. Some experiences of the authors are that it is much easier to have a facilitator to provide technical assistance in the operation of the distance learning hardware, so the instructor does not have to adjust or control the equipment. The facilitator also frees the instructor to move outside of the main viewing area and around the room instead of staying fixed behind the desk.

Other preparations for classroom management include: (1) making arrangements for a facilitator; (2) having a specific person that can be contacted by phone at a remote site in case of technical problems, especially if no facilitator is available in the room at all times; (3) checking out the facilities, library, and online resources of the remote site; (4) having a contingency plan for technical failures; (5) having a protocol list for students to follow if there are technical problems, such as a note card with camera presets recorded or a list of steps that can be used for those at the remote site; (6) making sure students have the information on obtaining the textbooks and resource materials before the course begins; and (7) making arrangements for administration of tests and other forms of evaluation.

Test Administration and Management

Test management is a normal process in a traditional classroom; however, it is an area that demands a great deal of attention and preparation in a distance learning course. Initial questions that should be asked are: Will traditional paper tests be used as a method of evaluation? How will the tests be sent to the students at the remote site? How will the tests be returned to the instructor? Will the graded tests be returned to the students, and if so, how? If not, how will the students get the instructor's comments and feedback?

In regard to the delivery of the tests, the instructor must be aware that if traditional paper tests are mailed to the remote site then they must be prepared well in advance; and if they are faxed, then arrangements need to be made as to who will receive them and when they will be sent. In regard to the grading and feedback provided to the students, the instructor must determine how the completed tests will be returned and when they will be available for grading and review. In other words, it is no longer a simple matter to return tests to the students in the classroom for review after they have been graded and then to collect them to be kept on file by the instructor. If the instructor does not keep the tests on file, then the process is simpler.

Various ways to handle these situations include: (1) having the facilitator at the remote site fax the completed tests back to the instructor and destroy the original completed test, (2) having the facilitator keep the original tests after faxing a copy to the instructor and return them the next class period for the students to follow when the instructor goes over the test (the student can compare their answers to the correct answers as they are discussed in class), or (3) having the facilitator mail the tests to the instructor through the traditional mail system which will be mailed back once they are graded. The main issues are whether or not it is important to keep the tests secure and how to get the results back to the students.

An ideal method is to have the tests online so that students can take the test at a computer at the remote site. If using special testing software or web-based instructional software like WebCT, each test can be graded immediately providing instant feedback to the student regarding the correct response for each question, and placing the individual score into the electronic grade book. This, of course, is an element that is not required for an interactive video course, but is one that solves some of the test administration concerns and challenges. It should be noted, however, that it is a time consuming process to develop online tests, and it presents yet additional concerns especially costs involved in equipping the distance learning classroom with computers.

Implementation of the Interactive Video Course

Preparation for Delivery

As a general rule, interactive video courses must be better planned, more organized, and more effectively communicated than the traditional class. Different teaching methods and strategies must be incorporated in order to make the distance learning course a success. Many of the issues have already been addressed in previous sections; however, some suggestions for planning the course are as follows:

1. Design interactivity into the course by encouraging student participation at both sites. One way is to plant questions or direct questions to a specific student which may or may not be provided ahead of time.
2. Determine ways to make students feel comfortable and less apprehensive with this method of delivery.
3. Plan an agenda of topics to be discussed for each unit so students can reflect on the topic ahead of time. This can be an outline from a PowerPoint presentation given the previous day in class.

4. Arrange for a facilitator to be present at the remote site and to coordinate the activities for the course.
5. Check distance learning equipment before class begins to make sure it is functioning properly.
6. Make sure textbooks and other resources are available for students at the remote site.
7. Make preparations for ways to talk with students outside of class (email, voice mail, electronic bulletin boards) to help them feel comfortable and encourage them to participate. In other words, students at the main site can come in before or after class (as well as other times), but when students at the remote site ask questions everyone hears them.
8. Make sure all arrangements have been made for test administration as described earlier.
9. Visit other instructors' classes and share experiences with each other. Be open and receptive to suggestions from others. Instructors can learn how to be more effective with the interactive video method of delivery by sharing ideas with others, as well as videotaping and critiquing themselves.
10. Attend training workshops offered by educational institutions and professional organizations. Many schools and universities have formal training sessions and others have trained experts that provide one-to-one training for faculty preparing for this method of delivery.

Some general thoughts for an instructor who is getting involved in the delivery of an interactive video course are to be patient and allow time to get accustomed to the new technologies required. Also, keep an open mind and strive to make the learning process an enjoyable one. Educators must continue to set high goals and reach for the stars. Remember that teaching and learning can both be exciting processes even when "experiencing difficulties" with technology.

First Day Delivery

A great deal of planning has preceded the first day, but it is still essential to prepare a "script" for the first day's activities. Even though these items listed below have already been addressed in the planning and design stages, it is essential to prepare the "script" to make sure they are not forgotten that first day.

1. Explain to the students the purpose of distance learning and the advantages of it.
2. Explain the layout of the room and the importance of speaking into the microphone as well as how the course will be conducted.

3. Introduce the participants and focus the camera on all sites so students can see each other and begin to feel comfortable with the new situation. Ask participants at the remote site to stay online after the regular class is dismissed to double check everything with them on a more informal basis and to evaluate the first day's experiences.
4. Explain some of the teaching strategies that will be followed throughout the course such as (1) involving students actively in the entire instructional process, (2) treating all students equally, and (3) making everyone feel comfortable.
5. Explain that all handouts provided to students at the local site will also be made available at the remote site, and be sure that plans have been made to take care of how this will be handled.
6. Be constantly aware of the learners at the remote site. One way to do this is to look in the camera often to make sure all students are actively involved. Also, project an air of approachability and concern for all students, and help students build confidence in the new teaching techniques and in themselves.
7. Plan to videotape the class session in case of technical problems as well as to evaluate the process.
8. Explain to students what they need to do if there are technical difficulties. Explain to them that there is either a facilitator present or somewhere nearby in case problems occur.
9. Be sure to provide an overview of the session (as well as every other class session) and summarize each class session.
10. Dismiss class early so students at the remote site can have an opportunity to provide feedback and to discuss the procedures for the course. At this time, explain the methods of communication they may use instead of personal contacts. These may include email, voice mail, or web-based bulletin boards. Make sure students understand what is expected of them from the beginning.

At the end of the first day, it is essential to evaluate the entire process, the activities that took place during the class time, the events that followed, and the effectiveness of the equipment as well as the method of delivery in general. Modifications and adjustments may need to be made before the next class period. It may also be necessary to contact the students at the remote site for feedback or to address specific issues or problems. Usually, after two or three class periods, the instructor, facilitator, and students at all sites will begin to feel more comfortable and the class will run smoothly.

Evaluation in the Interactive Video Course

As mentioned earlier some type of informal evaluation should be conducted after the first class period in order to make any necessary adjustments. After one or two weeks, it is often helpful to do a more formal evaluation to determine if all students are actively involved. A student evaluation form can be administered with the following questions: (1) Do you feel at ease making comments or asking questions? (2) Can you hear and see the instructor clearly? (3) Can you see the multimedia materials clearly; i.e., items on the document camera, video clips, slides, and PowerPoint presentations? (4) Is the facilitator available for assistance? (5) Do you understand the procedures for submitting homework and taking tests?

The traditional instructor and course evaluation form can be used at the end of the semester with additional questions added or the traditional evaluation form can be completely modified and adapted to meet this method of delivery.

Summary

Distance learning is not a new concept; in fact, it is a method of education that has been around for over a century. However, the instructional methodologies and the technologies incorporated in the 21st century were not even imagined a few decades ago. The idea of the educational environment was limited to a room with four walls, an instructor, and students. Now the technology has been so dramatically redefined that its "walls" encompass even the global community (Johnson, 1999). The opportunities to educators are almost limitless; and although the technologies sometimes seem overwhelming and challenging, educators can reach out to students who for varying reasons cannot be present in the traditional classroom and provide them the chance to further their education. Interactive video combines both the advantages of maintaining face-to-face interaction between instructor and students while allowing them to be in physically different locations. This method of delivery does require a great deal of planning with individuals at all sites, analysis and redesign of instructional materials, implementation of new methods of instruction, training on the use of the equipment, and a major time commitment. Therefore, educators must continue to approach these challenges as they have the previous ones with enthusiasm and a positive attitude in the never ending quest to expand the horizons of education in the 21st century.

References

Boling, N. C., & Robinson, D. H. (1999, March). Individual study, interactive multimedia, or cooperative Learning: Which activity best supplements lecture-based distance education? *Journal of Educational Psychology, 91*(1), 169-175.

Charp, S. (Ed.) (1999, September). Distance education. *T. H. E. Journal, 27*(2), 6, 8.

Chickering, A. W., & Ehrmann, S. C. (1996). Implementing the seven principles: Technoloy as lever. *AAHE Bulletin 49*(2), 3-6.

Chickering, A. W., & Gamson, Z. (1987). Seven principles for good practice in undergraduate education. *AAHE Bulletin, 39*(7), 3-7.

Chizmar, J. F., & Walbert, M. S. (1999, Summer). Web-based learning environments guided by principles of good teaching practice. *The Journal of Economic Education, 30*(3), 248-266.

Distance Education Clearinghouse. (1999, May 17). Some definitions of distance education. Retrieved from http://www.uwex.edu/disted/definition.html.

Dominguez, P. S., & Ridley, D. (1999, September). Reassessing the assessment of distance education courses. *T.H.E. Journal, 27*(2), 70-76.

Johnson, J. E. (1999). Distance education: Learning for the 21st century. In P. A. Gallo Villee and M. G. Curran (Eds.), The 21st century—Meeting the challenges to business education (pp. 90-98). Reston, VA: National Business Education Association.

Junk, V. W., & Fox, L. K. (1998, August). Making the most of home pages, email, the Internet and presentation graphics. *T.H.E. Journal, 26*(11), 66-68.

Kearsley, G. (1998, May). Distance education goes mainstream. *T.H.E. Journal, 25*(10), 22-26.

Matthews, D. (1999, September). The origins of distance education. *T. H.E. Journal, 27*(2) 54-67.

Merisotis, J. P. and Phipps, R. A. (1999, May-June). What's the difference? *Change*, 31(3), 12-18.

Okula, S. (1999, February). Going the distance: A new avenue for learning. *Business Education Forum, 53(*3), p. 7-10.

Popham, E. L., Schrag, A. F., & Blockhus, W. (1975). *A teaching-learning system for business education.* St. Louis: McGraw-Hill Book Company.

Potashnik, M., & Capper, J. (1998). Distance education: Growth and diversity. *Finance & Development, 35*(1), 42-45.

Storck, J., & Sproull, L. (1995). Through a glass darkly. What do people learn in video conferences. *Human Communication Research*, 22, 197-219.

Souder, W. E. (1993). The effectiveness of traditional vs. satellite delivery in three management of technology master's degree programs. *The American Journal of Distance Education. 7*(1), 37-53.

Wade, W. (1999, October). What do students know and how do we know that they know it? *T.H.E. Journal, 27*(3), p. 94 - 100.

Webster, J. and Hackley, P. (1997, December). Teaching effectiveness in technology-mediated distance learning. *Academy of Management Journal, 40*(6), 1282-1309.

Wetzel, C. D., Radtke, P. H., & Stern, H. W. (1994). *Instructional effectiveness of video media*. Hillsdale, NJ: Erlbaum.

Young, J. R. (2000, January 14). Faculty report at University of Illinois casts skeptical eye on distance education. *The Chronicle of Higher Education*, p. A48.

Chapter 4

Managing Groups in the Distance Learning Environment

Donna R. Everett, Morehead State University
Carol Yacht, Jerome, Arizona

Theory

The Internet makes distance learning (DL) a possibility for millions of students. Distance learning courses are growing more popular for numerous reasons. More college students are older, working, and may have family and work responsibilities. This makes anywhere, anytime education (asynchronous online learning) desirable.

The Internet offers educational opportunities that were never possible before. "The marvels of technology present us with many alternative options for the future of learning. However, it is not the technology but the vast combination of social, economic, and political factors that will influence the way we will actually employ this technology in the future" (Turoff, 1997, p. 3).

Rapid Growth of Distance Learning

The growth of DL courses is staggering. Keying the words "distance learning" in the Search box at www.yahoo.com will yield 37 categories and 565 sites for distance learning. Related terms, such as *distance learning degrees, distance learning courses, distance learning programs, distance learning mba, and long distance learning*, will produce thousands of results. Northern Light (www.northernlight.com), a search engine that will search on a constant basis for keywords, yields at least 27,000+ links for "distance learning."

Distance learning is a growth industry. More than 3,700 institutions of higher learning are accredited in the United States. Of their 14.2 million students, about 4.5 million are "traditional" college students: undergraduates aged 18 to 22 attending full time and living on or adjacent to campuses. Anywhere/anytime, asynchronous online learning is the branch of DL with the most growth potential (Allen, 1997, p. W16). "More than one-third of all colleges and universities in

the United States already offer distance learning; by 2002, four of every five are expected to do so" (Steinberg & Wyatt, 2000).

Purpose of DL

The purpose of DL is to provide education through alternate modalities. From the students' point of view, the advantage of DL is that it makes learning convenient. In the past, DL took the form of self-paced workbooks, correspondence courses, and videotape training. Today, in addition to the traditional methods of DL, other choices are available, such as the Internet, multimedia/CD-ROM, and audio and video conferencing.

At the Center for Continuing and Professional Education, State University of New York (SUNY), New Paltz, the goals include:

- Flexibility to meet learner needs.
- Reduced travel expenses associated with classroom training.
- Increased access to expert knowledge.
- Consistent training experiences.
- Current training experiences.

Program Support and Facilities in DL

"The program provides faculty support services specifically related to teaching via an electronic system. The program provides training for faculty who teach via the use of the technology" (Turoff, 1997, p. 15).

The differences between traditional classroom-based education and DL have significant implications for the design and delivery of instruction. Distance learning is not just the traditional classroom with the addition of the Internet. "Effective design and delivery requires considerable effort by a team of instructors, course designers, technicians, administrators, and students" (Online Distance Education, University of Houston Clear Lake, Distance Education FAQ).

Support for the online course is essential. Support tools should include ongoing:

- Academic and administrative support.
- Technical support.
- Adequate facilities.
- Adequate delivery, maintenance, and security.

DL courses require support in the form of developing the online learning community, dealing with technical difficulties, and defining the DL delivery system (Yacht & Everett, 1999).

Definitions Related to DL

Distance learning is a type of education where students work on their own at home or at the office on their own time and communicate with faculty and other students via e-mail, electronic forums, video-conferencing, and other forms of computer-based communication. Because the Internet is accessible from virtually all computer platforms, it serves as the conduit for many distance-learning systems. The Internet can distribute materials as "text, sound, moving images, or a combination of the three" (Steinberg & Wyatt, 2000.

At SUNY New Paltz, DL is distributed in three ways:

1. Asynchronous online courses via the Internet.
2. Two-way interactive video.
3. Videotaped courses.

SUNY's definition of DL is "a way of delivering instruction to many locations. The learner and the instructor are apart but interact via technology" (The Center for Continuing and Professional Education, State University of New York, New Paltz).

The Distance Learning Center at De Anza College, Cupertino, CA, explains DL in the following ways (Burruss, 1998):

- Offers courses encompassing a variety of subjects.
- Encourages participation from a variety of students including reentry, transfer, personal enrichment, homebound, job advancement, working, and parenting.
- Trains instructors to be empathetic with distant learner needs.
- Maximizes uses of interpersonal, small group, and media communication systems for distribution of information (such as face-to-face, mail, telephone, audio tape, cable TV, broadcast TV, and videotape).
- Investigates and integrates new technologies into program to improve quality and services.
- Communicates program and instructional information to students effectively and in an easy-to understand manner.

- Promotes and explains program to potential users through a variety of distribution systems.
- Evaluates program to respond to student/instructor needs and concerns.
- Provides leadership and cooperation in sharing organizational and program information with other groups, both within and outside of the De Anza community.
- Monitors costs and looks for efficiency in expenditures.

"First and foremost, an institution's distance learning program must be an integral part of the institution's mission and not an ancillary consideration" (Turoff, 1997, p. 19). From an administrative point of view, this means that DL students should be able to get departmental advisement, use the library and resource centers, have access to the dean, and any other normal on-campus functions. As the Internet becomes more pervasive, DL students should have the same access to campus-based facilities as traditional students.

Integrating distance students into regular classes is also a way to be able to support a small number of distance learners who are interested in specialized electives that do not have large student enrollments. The technology will make more diverse course offerings economically feasible (Turoff, 1997, p. 20).

Advances in interactive and digital technologies have contributed to enhancements in DL. These programs provide users with just-in time training, information and support through synchronous (face-to-face) and asynchronous audio, video, text, or graphic communications provided by a computer or by actual people (Online Distance Education, University of Houston Clear Lake, Distance Education FAQ).

Definitions Related to DL

Distance learning has its own vocabulary. A more extensive list of definitions can be found at http://www.kn.pacbell.com/wired/vidconf/glossary.html (The Pacific Bell Knowledge Network) and Toby Trowt-Bayard's book *Videoconferencing and Interactive Media: The Whole Picture*, and *The Distance Learner's Guide*, George P. Connick Editor. Here are some selected definitions from these sources for purposes of this monograph:

Asynchronous learning refers to online learning or anywhere/anytime education. The instructor and students communicate with each other through a computer and the Internet—each in their own time and space. Using their computers at home or at work, students receive course materials, compose and submit as-

signments, ask the instructor questions, and interact with other students in the class. Participation in an online course requires access to the Internet through either the school's computer lab or from home or work using an Internet Service Provider (ISP).

Bandwidth is the amount of information that can be transmitted in an information channel. In computers, it is the speed and the amount of data that can be transmitted simultaneously on a communications frequency.

Compressed video is the term used when the vast amounts of information in a normal TV transmission are squeezed into a fraction of its former bandwidth. The result is a compressed video signal that can be transmitted more economically. Compressed video also may refer to two-way interactive television (ITV) classes, where the instructor can see and hear students at distant sites and students can see and hear the instructor at each distant site.

Computer-mediated communication (CMC) is used interchangeably with the terms *distance education* and *distance learning*. The term implies that the computer is the mediator (or go-between) between the student and the instructor or between students, making the computer an uninterested, risk-free observer of interactions.

Desktop videoconferencing occurs on a personal desktop or laptop computer at a computer workstation.

Distance education is teaching and learning at a distance; students and the instructor may be in the same place at the same time and the TV monitors become the medium for communication (synchronous); or students and the instructor may be in different places at different times and the computers become the medium for communication (asynchronous).

Distributed learning is the term applied to course materials (including text, voice, graphics, audio) that are *distributed* through electronic means.

Hypertext markup language (HTML) is the language used to write Web pages.

Integrated Services Digital Network (ISDN) is a digital network that provides seamless communication of voice, video, and text between individual and group desktop videoconferencing systems. ISDN is expected to replace current telephone lines.

Interactive video is a way of offering courses using interactive two-way video and audio. This allows students to attend a course at one location while the instructor teaches from another classroom site. Also may be called compressed video.

Internet is the worldwide electronic communication network that allows for the sharing of information. The Internet is also known as the "information highway."

Synchronous learning allows students to participate at the same time usually face-to-face in a traditional classroom setting. In the online environment, synchronous learning may occur in online chat rooms or through web camera interface.

Uniform Resource Locator (URL) is the term which refers to a Web address. The prefix for a URL is http://.

Videoconferencing allows communication across long distances with video and audio contact that may also include graphics, text, and data exchange.

Web browser is the software used on a personal computer to connect and display information from a Web site computer called a server.

World Wide Web (WWW) consists of billions of files on millions of computers interconnected by the Internet that allows the user to view and hear multimedia—text, pictures, audio, and video. In 1989, Tim Berners-Lee invented the WWW at CERN, the European Laboratory for Particle Physics in Geneva, Switzerland (www.cern.ch/).

For purposes of this paper, two more definitions may have meaning:

Web-based training or instruction (WBT). A complete course may be downloaded or delivered entirely on the Internet from sources, such as universities and colleges, media companies, and/or pay-for-education sources.

Web-enhanced instruction. Instructors may infuse the Internet and the Web or courseware into courses that are taught in several configurations: face-to-face, compressed video or two-way interactive television, computer laboratories, or other more traditional delivery systems.

Web-based instruction or training (WBT) is the delivery system dealt with in this paper. The key question addressed is *How is group work set up, managed, and delivered in a distributed learning environment?*

Research Review Related to Managing Groups in DL

Creating a learning community is important in the traditional classroom and in the online classroom. The differences between the two learning environments are obvious: face-to-face contact with the instructor is not possible unless students make the effort, face-to-face contacts with other students are not likely unless they make the effort, and nonverbal communication cues are lost that enhance student understanding and interaction. What this implies is that the instructor must set the climate for student learning using the computer as the medium. The new paradigm of education brought about by computer-mediated education is that the "key to the learning process is the interactions among students themselves, the interactions between faculty and students, and the collaboration in learning that results from these interactions" (Palloff & Pratt, 1999, p. 5). Collaborative learning communities are created through shared knowledge.

Communities in the online classroom take on a different dimension from the traditional classroom. Steven Jones (1995) in his book *Cybersociety*, states that "the extent to which people use CMC as a means to invent new personas, to recreate their own identifies, or to engage in a combination of the two and the way which they do so are issues central to the construction of a computer-mediated social world" (p. 156). According to a study by Pratt (1996), in the online environment, certain elements must manifest, such as:

- The ability to carry on an internal dialogue in order to formulate responses
- The creation of a semblance of privacy both in terms of the space from which the person communicates and the ability to create an internal sense of privacy
- The ability to deal with emotional issues in textual format
- The ability to create a mental picture of the partner in the communication process
- The ability to create a sense of presence online through the personalization of communications (pp. 119-120).

Just like in the traditional classroom, the central ingredient must be the creation of an open, caring atmosphere for sharing knowledge, concerns, goals, and com-

munications. Such elements as honesty, trust, responsiveness, relevance, and respect contribute to the learning community. These elements help students feel comfortable in an environment that is new, different, and evolving.

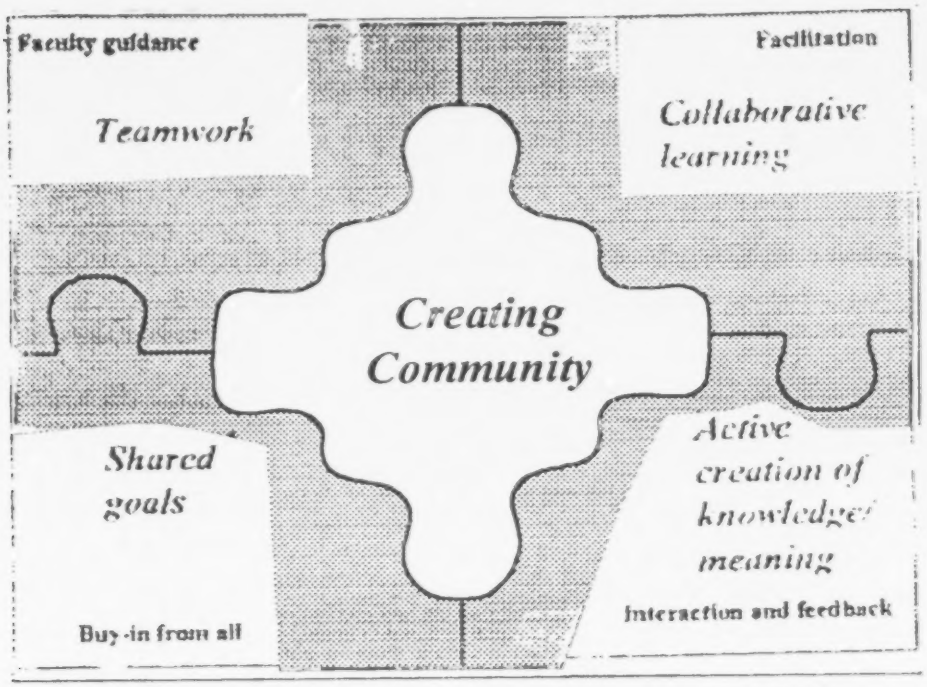
Three educational theories are relevant to computer-mediated communication: *constructivism*, Brooks & Brooks, 1993; Cranton, 1994; *active learning*, Myers & Jones, 1993; and *transformative learning*, Mezirow, 1991; Sherry & Wilson, 1997. These theories attempt to bridge the gap between the traditional paradigms of education and the new computer-mediated paradigms. *Constructivist* and *active learning* theorists suggest that learners *actively construct* knowledge and meaning through experimentation, exploration, manipulation, and testing based on past experience and accumulated knowledge—especially in environments where they may not have any experience or frame of reference.

According to Mezirow (1991), *transformative learning* is an unanticipated result of online learning. Students' perspectives are *transformed* when problems are encountered that cause learners to reassess prior knowledge, beliefs, relationships, or experience. Just getting involved in an online learning environment challenges students' traditional perspectives of learning. Students and instructors relate differently to each other, thus forcing students to rethink the role of learner and instructor. For the most part, transformative learning is an unconscious process but has far-reaching implications for instructors who must make room for more independence, competence, and reflection in their learners. Palloff and Pratt (1999) summarize this transformative process, as follows:

> ...personal growth becomes a companion to intellectual growth as the student assumes greater responsibility for the learning process, competence, authority, self-confidence, and an overall sense of mastery and power (p. 131).

In Figure 1, Palloff and Pratt suggest a new paradigm of learning. They contend that the parts of the new paradigm—teamwork, focused outcomes, shared goals, active creation of knowledge and meaning, and collaborative learning—are enhanced through faculty guidance, facilitation, buy-in from everyone, and interaction and feedback among and between the students and the instructor. Since the instructor cannot be in control of how or what is being learned—or even when—a learner-centered environment emerges from this model. This sets the stage for electronic learning where the students and the instructor collaborate to establish a new social construction of meaning (Jonassen, et al., 1995).

Figure 1
A NEW PARADIGM OF LEARNING



Source: **Adapted from Palloff & Pratt, 1999, p. 17.**

To create the electronic learning community (the central point of Figure 1), a facilitator approach that encourages a free-flowing, interactive environment, which empowers learners to share content and participate in peer feedback, is imperative. To enhance meaning and learning and to promote a sense of autonomy, initiative, and creativity in the online classroom, group activities, collaboration, simulations, open-ended questions, shared goals, and teamwork can be used. The instructor becomes the facilitator of learning and not just the source of knowledge. The role of facilitator enhances the meaning of self-directed learning.

Student responsibilities and rewards. Students are not passive bystanders in the online classroom. The role of the student is much like the role of the instructor in that students must *actively* pursue and *transform* knowledge, interaction, and meaning from the materials presented in cyberspace—a conceptual location where students and instructors meet. In cyberspace, words and data take on a whole new meaning and appearance.

73 BEST COPY AVAILABLE

Characterizing the role of the instructor in the online classroom as that of facilitator means that the learners have essential roles and responsibilities, also. Students have the responsibility to generate knowledge, seek solutions from many alternatives, and engage in dialogue to refine their knowledge. Knowledge that is augmented by reasoning, argumentation, and problem-solving promotes autonomy. The cognitive emphasis shifts to evaluation and reflection, not only on the results of the discussion and problem-solving activities, but on the processes and tactics that seemed influential and effective (Hartley, 1999).

Further refinement of knowledge, ideas, and solutions may include dialogue and collaboration with the instructor and other students that leads to research related to the topic. The collective knowledge gained and shared from the collaboration and dialogue makes students feel their contributions have worth and acceptance.

In the online classroom, students are active participants. Student roles include questioning, challenging, explaining, tutoring, and constructing. Students learn to negotiate and understand differences, to discern processes and tactics that are influential and effective, and to internalize new ways of learning and interacting that can be used in the external world.

If this medium is truly the great equalizer, boundaries between cultures, genders, ages, and power are transparent. When learners realize that they are also teachers, a powerful transformation occurs that results in shared power, shared responsibility, and shared rewards (Border, 2000, p. 9).

Because active learning is a desired outcome of web-based learning, one way to ensure active participation is to share typical instructor functions: facilitator of discussion, observer of group dynamics, content communicator, team leader, and presenter. Additionally, all students are responsible for providing feedback to each other. In order for this to work, the instructor must be willing to give up control of the direction—and sometimes the content—of the discussion. The instructor is an equal member of the learning community, resisting the urge to lead (Palloff & Pratt, 1999, p. 121-122).

Feedback is essential for students. Students develop (and are rewarded) as learners when feedback provides them insight into the accuracy of their work (Angelo, 1993; Van Houten, 1980). Often, the feedback received in an online course helps them decide whether to stay in the course. If the feedback is late, not specific, inappropriate, or unrelated to their skills or assignments, they may commit less energy to it (Egan, et al., 1993).

Students have a lot to gain in the online classroom. What follows transforms students to retain content, become involved and committed to the outcome, share in the successes and failures of teamwork, and integrate the results into their personal lives. This is one of the most exciting aspects of online learning!

Instructor rewards. By design, online teaching is different from the traditional model of instruction. Without using the maximum effects of the electronic medium, the results (and rewards) will not materialize. Development of community is at the heart of online instruction and holds the greatest promise for learning and teaching. If an instructor is willing to share instruction and to empower students to take their learning as far as it can go, the results will be phenomenal. Sherry & Wilson (1997) define the following outcomes of *transformative* learning from the instructor's point of view:

- The student teaches the instructor something he or she didn't know before about the technology or the course content.
- The student goes beyond the textbook or the lecture to reveal differences of opinion among the experts.
- More emphasis is placed upon finding support or backing for a position than on conforming to authority.
- Students participate in setting the agenda for the class by helping to choose content or learning methods, or both.
- Students call the instructor's attention to valuable learning resources.
- Students have conversations with knowledgeable people the instructor doesn't know.
- While the instructor helps to establish expectations and sets a clear assessment standard, the students collaboratively guide much of their own learning.
- The instructor finds himself or herself saving student work—not merely as examples of student work—but as a resource for future reference (p. 69).

When students and the instructor gather together to provide mutual support for learning and performance, an effective support system for a learning community is created. The classroom walls are extended beyond the bricks and mortar. The active learning that occurs then begins to push the frontiers of knowledge.

> [When students begin to push the frontier of knowledge)... [i]t takes significant effort for an instructor to understand what students are thinking about learning new topics. They may well develop new understand-

> ings of the subject domain by seeing how students have spontaneously come to think about it and what surprising inferences they can make (Pea, 1994, p. 290).

By supporting an open, caring, nurturing community, the instructor assists students in transferring knowledge to new contexts and creates an effective educational methodology.

Conclusion to Theory about DL

Distance education requires more than software and hardware. Careful attention to the *people* in the computer-mediated environment makes the course a success. The human element in online courses impels instructors to adopt new pedagogical strategies—active learning, collaborative techniques, facilitator, etc.—which enhance communication opportunities for their students to overcome feelings of "distance;" assist students to modify their behavior to accommodate the online environment; and reap the rewards of successful online interaction. This results in instructors knowing their students better in the online environment than in the offline environment.

Application

Introduction

When teaching and learning leave the classroom, the instructor has to create a vessel within which the course is launched. The challenges that face the instructor can be daunting. The discussion below focuses on each of the challenges that an online instructor should consider for successful online teaching. The following issues need to be addressed for successful online teaching.

Pedagogical issues. The change to online teaching necessitates a focus on learner-centered instruction rather than a content- and faculty-driven approach. In this environment, student work and peer evaluation are encouraged with the instructor facilitating the process wherever it may lead. Collaborative learning techniques create an equal playing field where the interaction often occurs throughout the group instead of between one participant and the facilitator. Both students and instructor act as group members, contributing to the learning process (Palloff & Pratt, 1999).

Time. Time in the distance learning environment takes on many meanings. The discussion below touches on three critical points:

1. First, Web environments are "multi-speed" (Harris, 1994). Learners have the capability of accessing materials on their own time and over time. Materials provide the cohesiveness needed to engage learners and establish themes for interaction and discussion.
2. Second, time relates to feedback that is critical to maintain students' interest and interaction with the instructor and their peers. From the beginning of the course, acknowledgement of the students through initial online contact must be attempted—even before moving into the course content. Throughout the course access to the instructor remains one of the highest needs for students. Set up a schedule, such as that suggested by Conrad and Crowell (1997) to deal with time and access issues:
   - Set a specific time each day to read and respond to messages rather than doing it throughout the day.
   - Wait to respond to a message that upsets you and be careful of what you say and how you say it. [Tone does matter in online messages.]
   - Never say anything that you could not tolerate seeing in print on the front page of your local newspaper.
   - Establish clear priorities for dealing with messages and categorize messages by importance and need to respond (p. 4-5).
3. Third, the amount of time to prepare and administer an online course may be roughly as much as two to three times greater than it takes to prepare for and deliver an offline course. Time must be spent reviewing assignments, reading and responding to student and group posts, dealing with individual questions, and reading student and group assignments. Simply posting material and walking away for a week may result in an overload of messages and posts, making it difficult to re-enter the class discussions.

Setting up groups in the online environment takes special attention to actual mileage distances between students, experience with online learning, fields of expertise and employment, and other personal considerations known only to the instructor. In the online environment, the instructor cannot simply divide the group by counting off by fours. Paper creation of the groups, notification of the group membership, access to group tools (such as chat rooms, email addresses, group Web pages, etc.) must be arranged, and working with each group in its own time must be carefully thought out and planned.

Group size. Closely related to time are issues of group size—mainly due to the ability of the instructor to maintain some semblance of control over the process without undue information overload for students. Factors to consider in setting up groups include the level and skill of the facilitator and students, knowledge of the electronic medium, content discussed or explored, assignment resulting from

the group work, and the means of discussion or exploration. For the instructor and the students, five to ten members is an ideal number. However, if the collaborative work is an original paper or case study and online presentation, a smaller number of group members and staggered posting dates would be better. Graduate students can work in larger groups better than undergraduate students, who will need more assistance and input from the instructor.

Guidelines for group work are just as important in the online class as in the offline class, and should be posted close to the beginning of the class. Each group needs a team leader, a convener, an arbiter, and a recorder. Group differences should be handled within the group itself and, if possible, online with the instructor. Participation is an important part of group work and the final grade. Group members should evaluate each other's participation and contributions to the project with the resulting score being factored in for each group member. Scheduled electronic meetings with each group and the instructor are critical throughout the progress of the project.

Overcoming distance. The distance learning environment can lead to feelings of isolation or alienation unless the instructor is willing to commit the time and energy to being available and responsive to students' questions and assignments. Ways to assist the learner in overcoming the "lost in cyberspace" feeling must be incorporated into the course. Being assigned immediately to a discussion or project group may help overcome feelings of unconnectedness and dissonance. With no frame of reference and/or prior experience, connecting with other students from the very beginning of the course is crucial.

Access. To successfully conduct online classes, all participants (students and instructor) must have access to and familiarity with the technology being used. The comfort with both hardware and software contributes to a sense of psychological well-being and to a greater likelihood of participation (Palloff & Pratt, 1999). The learning curve for new students in the online environment will require more initial involvement with the instructor and group members. All of this should be incorporated into the learning and teaching process. Additionally, technology problems—computer crashes, ISPs going down, and large amounts of online traffic at peak times—may occur preventing students from completing work in a timely manner. A certain amount of leeway needs to be built into the course to take these unforeseen occurrences into account. Instructors only know about these problems if they stay in touch with and are available to their students.

Etiquette. Setting up class guidelines at the beginning of the course will alert students about appropriate behavior and course communication. Just as in the offline class, students who have input into the management of the online class will act to curb inappropriate remarks by other class members.

Access to library and materials. The feeling of information overload can be averted at the beginning of the online class by providing a "starter" list of resources that can be amended and expanded over the duration of the course. In this way, students will not spend needless time searching the Internet for an unknown target. If a research project is required as part of the course evaluation, students may need access to on-campus library. Access to the on-campus library may require the services of a librarian, a specific password, and additional plug-ins to read the materials. Students who do not have the bandwidth to accommodate large amounts of data in single files should be encouraged to work with their group members to obtain these materials. Copyright issues must be addressed so that students understand appropriate use of materials.

Privacy/legal issues. Tied closely with online etiquette is the issue of privacy as it relates to electronic communications. Encryption is rarely employed in the academic setting and students must understand that persons outside of the class can read email messages and discussion threads. Good judgment must be used in what they share. Additionally, illegally obtained materials posted in the course and quoted without permission must be downloaded as soon as possible. If a student drops out of the class, access to the site must be denied through the deactivation of his or her password (Palloff & Pratt, 1999).

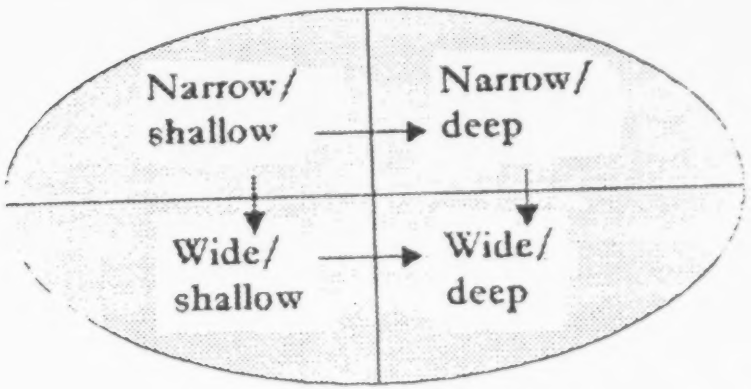
Getting Started with Collaborative Learning in DL

Given that team products can be displayed (and should be) to class members, the resulting project should reflect well thought out guidelines and directions. Since the opportunity to discuss all questions related to the group project(s) cannot be accomplished face to face, the instructor must anticipate FAQs and post them along with the guidelines. In addition, as other questions are asked during the course, these questions and answers also should be posted. Group assignments may start simply: pairs of students may be asked to email their thoughts and ideas regarding an assignment to the entire class. From this small beginning, other collaborative projects, such as group responses to discussion threads, may be incorporated. Always provide good directions with specific deadlines.

Steve Gilbert offered a model for getting started with collaborative group work in the online environment. Gilbert's Teaching and Learning with Technology (TLT) group is associated with the American Association for Higher Education. His model appears as Figure 2 and contains the following elements:

In Gilbert's model (1999), his suggestion is to start from narrow/shallow (try one strategy to get one's feet wet). Then, move to narrow/deep (doing one strategy very well; for example, using email or presentation software) to wide/shallow (trying more than one strategy with small projects; for example, using email, presentation software, and adding discussion threads), then move to wide/deep (many strategies and many projects, email, discussion threads, chats, presentation software, collaborative projects that require audio or video, etc.). He posits that by the time one reaches the wide/deep level, one's philosophy, epistemology, and pedagogy are changed forever. One cannot move, however, from narrow/shallow to wide/deep in one big leap.

Figure 2
PORTFOLIO OF STRATEGIES



Source: Steve Gilbert, *Portfolio of Strategies*, Audio presentation through DEOS-L Listserv, 1999.

His model makes sense for beginners and experienced instructors in the online environment as incentives to get started and to keep moving ahead. Just as in the offline classroom, students will adapt to whatever strategy(ies) the instructor use(s). Gilbert's premise is to plan for online strategies at one's comfort level with the technology and with one's ability to navigate software and hardware.

BEST COPY AVAILABLE

Ellen Wagner (1997) offers a description of interactions, which occur in an online learning environment, as follows:

- Interactions that occur between the learner and the instructor
- Interactions that occur among learners
- Interactions that take place between learners and the content they are trying to master (p. 21)

Her model helps the instructor focus on the desired purpose, intent, and/or intended outcome of the interaction by virtue of indicating *who* or *what* is to be involved in a transaction, not on the technology to deliver the interactions. In building interaction into learning, the following types of connections must be considered:

- Interaction to increase learning which implies the learner's willingness in the learning process.
- Interaction to increase participation provides a means of engagement of the instructor or fellow class members.
- Interaction to develop communication provides opportunities for personal expression, for exchange of ideas and views, to share information and views, and/or to intentionally influence opinions or beliefs of others.
- Interaction to receive *feedback* provides information about quality of performance.
- Interaction to support *learner control/self-regulation* provides information needed to manage the depth of study, range of content covered, to prepare individuals to be lifelong learners, to mediate understanding of course content, and to recognize when the task has been completed.
- Interaction to enhance *elaboration* and *retention* focuses on the practice and application of course content.
- Interaction to increase *motivation* provides opportunities for asking questions, clarifying statements, reviewing guidelines which overcome negative conditions or emotions (especially reluctance to participate).
- Interaction for *negotiation of understanding* is determined by the willingness of the learner to engage in dialogue, to come to consensus, to conform to agreement, and to articulate learning.
- Interaction for *team building* stresses the importance of interaction as a strategy for team development and dynamics of the stages of development in a team from membership to subgroupings, confrontations, and shared leadership.
- Interaction for *discovery* pushes the envelope for new and different ways of viewing information.

- Interaction for exploration defines the scope, depth, and breadth of a new idea.
- Interaction for clarification *of understanding* relates to the ability to navigate one's way through expectations that may not be clear.
- Interaction for *closure* marks the end of a specific learning endeavor (Wagner, 1997, pp. 22-25).

By using the benchmarks suggested by Wagner, consideration can be given to the goals and objectives of the learning experience, the conditions under which they occur, and the desired outcomes. With this in mind, the next section of this paper focuses on examples of group activities.

Examples of Group Activities

Empowering students through shared leadership in the online course enhances their overall sense of interdependence, accountability, and participation. A number of generic cooperative learning methods are amenable for the online environment. Table 1 below illustrates collaborative projects from the literature and from experience. Interactions are shown for each activity. Table 1 shows the wide variety of activities that can be incorporated into the online classroom. As technology continues to evolve and bandwidth increases, video and audio streaming techniques will enhance the same time/different place phenomenon which occurs in asynchronous learning. Further discussion and activities may be found in *Web-Based Instruction* (Khan, Ed., 1997).

In summary. With Web-based instruction, students now have new learning partners and new learning materials for discovering, producing, and synthesizing knowledge. Instructors also have new strategies for sharing the learning and teaching process with their students. This may be the best of times...and the worst of times as evolving technology and more sophisticated end-users continue to challenge instructors to find new ways to teach.

Table 1
Suggested Collaborative Projects for the DL Environment

Activity	Interaction
Learning contracts	Between instructor and student; for participation
Discussion board groups	Between instructor and small group; among group members; for participation, team building
Capstone or culminating project	Between instructor and group; among group members; between groups; for closure, exploration, discovery, team building, communication, negotiation of understanding, elaboration and retention
Group Internet searches and sharing	Between instructor and group; between groups; for understanding, exploration and extension
Round robin or roundtable questions: input on issue—one group starts and passes on to the next group (could also be used individually)	Between instructor and individual; between instructor and group; for learning, participation, communication, discovery
Meet the Expert chat	Between instructor and group; between groups; for discovery, retention, understanding, clarification
On-line cybercafe (discussion thread or chat room)	Between students; between groups; for clarification, questioning, understanding
Press conference to launch capstone project to class	Between groups; instructor as observer; for communication, feedback, team building, closure
Group summary (of assigned reading) presented in discussion thread	Between group members; for understanding, clarification, communication, feedback
Original group posting in discussion thread related to topic or assigned reading	Between group members; for understanding, communication, feedback, clarification
Group Web Page (to introduce group or to introduce ideal work environment, etc.)	Between group members; for participation, motivation
Class Picture Gallery	Between instructor and students; for motivation, team building, community
Panel discussion (in chat room)	Between groups; for communication, team building, motivation

Evaluation

Formative and summative evaluations are generally used to provide feedback to students on their on-going progress and upon final course completion. But does this model fit the dynamic, learner-centered nature of online learning? Research into assessment of online learning suggests that other viable methods should be built into the class structure. Some of these methods could also be translated to the traditional classroom.

> Harasim, et al., (1996) states:
>
> In keeping with a learner-centered approach, evaluation and assessment should be part of the learning-teaching process, embedded in class activities and in the interactions between learners and between learners and teachers (p. 167).

Stephen Brookfield (1995) advocates another form of evaluation when he states: "Knowing something of how students experience learning helps us build convincing connections between what we want them to do and their own concerns and expectations" (p. 93). The dynamic, interactive nature of online courses provides an ideal opportunity for the instructor to enhance student learning based on individual needs, expectations, and course goals.

If course guidelines and outcomes have been well defined, if student performance criteria have been established, and if students have been able to define their place in the course, then formative evaluation should be reasonably easy. Formative evaluation should take multiple sources of data into account, such as the quantity and quality of postings on discussions, participation in chat room meetings, performance in course assignments, and involvement in group activities. Several ways of determining if students are gleaning the most from the learning experience may include some of the following evaluation examples.

Dialogue

Continuously scanning the ongoing dialogue in discussion threads is a rich source of evaluation material. Stopping to post comments or ask questions during the dialogue also engages learners to extend the boundaries of the textbook or other written materials. Adults are a rich source of life and work experience; providing the runway for them to safely share these experiences will enrich course content and the online learning experience. Just adding comments to a discussion thread may not be enough for some students who are always concerned about the qualitative nature of their course participation. Borrowing on a line from a popular movie (*Field of Dreams*): *Give them points and they will come*. Instructors must realistically understand that not all discussions are voluntary. Changes in behavior (learning) can occur once students are engaged in meaningful dialogue with their peers and the instructor.

Chat Room Visits

Participation in synchronous discussions with the instructor and peers is critical in an online class. Participation points may be enough to entice students into the chat room environment. Collaborative learning techniques—ask an expert, panel discussions, press conferences, group-led discussions, or merely being available to clear up questions related to course or group assignments or materials—can build classroom ambience into the online environment.

Student Assignments

Instructors in online courses may be concerned about cheating. Idealistically, if the course guidelines, objectives, and course environment (learner-centered, empowerment, self-reflection) have been planned well, cheating should not be a problem. The instructor has to build into evaluation the critical thinking aspects of the course and collaborative assignments. Evaluation needs to promote self-assessment, reflection, expert development in the subject matter, and production work that can be useful for others in the class. Learners only cheat themselves if they don't take advantage of peer experience and teaching. Assessing student and collaborative assignments may be accomplished by asking students to evaluate their own work before submitting it, complete learning contracts for a certain grade at the beginning of the course, share and evaluate others' work, and use of scoring guides which reflect the objectives established for assignments. Taking the time to add written comments throughout students' submitted work will add to their learning and willingness to participate and accept suggestions for improvement. The old saying: *Students won't care how much you know, until they know how much you care* holds a lot of truth in an environment where written cues are the only reliable tools instructors have.

Group Assignments

Developing skills in giving feedback can be useful in the online environment and in the external world of work. Collaborative assignments provide the opportunity for students to extend and transform their own learning. Greg Wiggins (1998) gives credence to the use of ongoing feedback when he states:

> The receipt and use of feedback must be an ongoing, routine part of assessment. The reason for making feedback concurrent with performing is that this is the only way students can learn to self-assess continually and then self-adjust their intellectual performance, just as musicians, artists, athletes, and other performers continually self-assess and self-adjust (pp. 59-60).

In the business world, 360-degree feedback (London & Beatty, 1993) comes from many sources. In the online course, the instructor can build 360-degree feedback through peer evaluation, self-evaluation, and his or her own evaluation into a group project—especially the capstone project. Students need to know from the beginning that peer

evaluation will be a part of the final assessment for the project, and the evaluation instrument should be posted online for students to review. Then, as part of the final group project grade, the instructor's evaluation, the self-assessment, peer assessment, and group cohesiveness all can be summed together for the final grade. The instructor is the final arbiter of the group grade.

If an instructor wants to include examinations and quizzes in the evaluation of student work and group projects, additional planning needs to take place. Some courseware permits the creation of online tests and quizzes which allows students to receive immediate feedback and grades their answers. Additionally, the courseware also may post the grade in the student's personal online file and will not allow the student to retake or modify the test results. The issue of whether the student whose name appears on the exam or test is the person taking the test may arise. Some instructors prefer to have students take proctored exams or tests on-site—either in a campus classroom, a remote location with a designated person, or with a testing service. Whichever method is used should be made clear to the students at the beginning of the course.

Additional Considerations

Assessment in the online course takes the instructor full circle from the beginning of the course to the end. Evaluating student group assignments and participation also should include consideration of the needs and learning objectives students identified at the beginning of the course, their educational level, experience with the subject matter and the technology, and issues related to writing.

Feedback *from* students related to course assignments, discussion threads, chat room visits, or group assignments is another form of assessment that can be built into the course or may occur as an unexpected benefit of the online relationship between the students and the instructor. Planning for and expecting feedback throughout the course will enrich the experience for both the instructor and the students. Feedback is a rich source of assessment, reflection, and continuous improvement of the course for the instructor. Students who are willing to trust the instructor to take comments with an open, honest spirit learn to own and share the online learning and teaching experience.

Summary

Distance learning makes education a possibility for millions of students. All predications point toward tremendous growth in anywhere/anytime education. From both the students' and instructors' point of view, there are many advantages. Opening up educational opportunities to everyone with an Internet connection has far-reaching implications.

The online learning community is more than the traditional classroom with the benefit of technology. Online learning communities are created through shared

knowledge. Instructors and students are both responsible for teaching and learning. Three educational theories are relevant: constructivism, active learning, and transformative learning. In the online community, teachers facilitate learning through collaboration with their students. Teachers lead and follow; students teach and learn. Both the teacher-facilitator and the student participant share responsibility for teaching and learning.

Online teaching is learner-centered. Peer evaluation is essential. The online classroom calls for an equal playing field where cooperation, collaboration, and group learning can take place. The instructor needs to evaluate critical thinking skills, collaborative work, peer and self-assessment, as well as mastery of the subject matter.

Distance learning may be the great equalizer that opens the boundaries between cultures, genders, ages, and power. The educational revolution is upon us—we can volunteer or, in time, be drafted. The implication is that educators should learn as much as possible about distance learning.

The table that follows lists the web sites referred to in this monograph.

Table 2
Web Resources.

Description	Web site
Donna Everett	http://www.morehead-st.edu/people/d.everet
Carol Yacht	http://users.sedona.net/~cyacht
Search Engines	http://www.yahoo.com http://www.northernlight.com
De Anza College	http://distance.deanza.fhda.edu/DLCFAQ.html
Effective pedagogies for collaborative learning	http://ifets.gmd.de/periodical/vol_2_99/formal_discussion_0399.html
National Association of College and University Business Officers	http://www.nacubo.org/website/members/bomag/1097_conrad.html
Pacific Bell Knowledge Network	http://www.kn.pacbell.com/wired/vidconf/glossary.html
Portfolio of Strategies State University of New York at New Paltz	http://www.tltgroup.org http://www.newpaltz.edu/continuing_ed/faqdl.htm
European Laboratory for Particle Physics	http://www.cern.ch/
University of Houston, Clear Lake	http://129.7.160.115/COURSE/DISTEDFAQ/Disted_FAQ.html
M. Turoff	http://eies.njit.edu/~turoff/Papers/darkaln.html

References

Allen, C. (August 10, 1997). The Virtual University. *The Washington Post.* W16.

Angelo, T. (1993). Fourteen general, research based principles for improving higher edudation. *AAHE Bulletin. 45*(8). 5-7.

Border, L. L. B. (2000). Classrooms versus chat rooms. *The National Teaching & Learning Forum. 9*(2). 9.

Brookfield, S. D. (1995). *Becoming a Critically Reflective Teacher*. San Francisco: Jossey-Bass Publishers.

Brooks, J. & Brooks, M. (1993). *In Search of Understanding: The Case for Constructivist Classrooms*. Alexandria, VA: Association for Supervision and Curriculum Development.

Burruss, B. G. Frequently Asked Questions. De Anza College Distance Learning Center. Cupertino, CA. Found at http://distance.deanza.fhda.edu/DLCFAQ.html.

The Center for Continuing and Professional Education, State University of New York at New Paltz, "Distance Learning." Found at http://www.newpaltz.edu/continuing_ed/faqdl.htm

Connick, G. P. Editor. (1999) *The Distance Learner's Guide*. Upper Saddle River, NY: Prentice Hall.

Conrad, L. D. & Crowell, P. W. (1997). E-mail addition. *Business Office.* National Association of College and University Business Officers. Found at http://www.nacubo.org/website/members/bomag/1097_conrad.html

Cranton, P. (1994). *Understanding and Promoting Transformative Learning: A Guide for Educators of Adults*. San Francisco: Jossey-Bass Publishers.

Egan, M. W., Ferraris, C., Jones, D. E., & Sebastian, J. (1993). The telecourse experience: A student perspective. *Education Journal. 7*(5). j1-j7.

The European Laboratory for Particle Physics, Geneva, Switzerland. http://www.cern.ch/

88

Gilbert, S. (1999). Online presentation, *Portfolio of Strategies*. http://www.tltgroup.org

Harasim, L., Hiltz, S. R., Teles, L., & Turoff, M. (1996). *Learning Networks*. Cambridge, MA: MIT Press.

Harris, J. (1994). Telecommunications training by immersion: University courses online. *Machine-Mediated Learning. 4*(2&3). 177-185.

Hartley, J. R. (1999). Effective pedagogies for managing collaborative learning in online learning environments. *Educational Technology & Society. 2*(2). Found at http://ifets.gmd.de/periodical/vol_2_99/formal_discussion_0399.html

Jonassen, D., Davison, M., Collins, M., Campbell, J., & Haag, B. (1995). Constructivism and computer-mediated communication in distance education. *The American Journal of Distance Education. 9*(2). 7-26.

Jones, S. (1995). *Cybersociety*. Thousand Oaks, CA: Sage Press.

Khan, B. H. (Ed.). (1997). *Web-Based Instruction*. Englewood Cliffs, NJ: Educational Technology Publications.

London, M. & Beatty, R. W. (Summer/Fall 1993). 360-degree feedback as a competitive advantage. *Human Resource Management*. 353-372.

Mezirow, J. (1991). *Transformative Dimensions of Adult Learning*. San Francisco: Jossey-Bass.

Myers, C. & Jones, T. (1993). *Promoting Active Learning: Strategies for the College Classroom*. San Francisco: Jossey-Bass Publishers.

Pacific Bell Knowledge Network, Videoconferencing Glossary. Found at http://www.kn.pacbell.com/wired/vidconf/glossary.html.

Palloff, R. M. & Pratt, K. (1999). *Building Learning Communities in Cyberspace*. San Francisco: Jossey-Bass Publishers.

Pea, R. D. (1994). Seeing what we build together: Distributed multimedia learning environments for transformative communications. *The Journal of the Learning Sciences. 3*(3). 285-299.

Pratt, K. (1996). *The Electronic Personality*. Unpublished doctoral dissertation. Human and Organizational Systems Program. Fielding Institute.

Sherry, L. & Wilson, B. (1997). Transformative communication as a stimulus to Web innovations. In B. H. Khan (Ed.), *Web-Based Instruction* (pp. 67-73). Englewood Cliffs, NJ: Educational Technology Publications.

Steinberg, J. & Wyatt, E. (February 13, 2000) Boola, Boola: E-commerce comes to the Quad. *The New York Times*. Section 4. 1 & 4.

Trowt-Bayard, T. (1997). *Videoconferencing and Interactive Multimedia: The Whole Picture*. San Francisco: Miller Freeman Books.

Turoff, M. (1997). *Alternative Futures for Distance Learning: The Force and the Darkside*. Keynote presentation at the UNESCO/Open University International Colloquium, April 27-29, 1997: Virtual Learning Environments and the Role of the Teacher, Open University, Milton Keynes. http://eies.njit.edu/~turoff/Papers/darkaln.html

The University of Houston Clear Lake – Distance Education FAQ. Online Distance Education. http://129.7.160.115/COURSE/DISTEDFAQ/Disted_FAQ.html

Van Houten, R. (1980). *Learning Through Feedback: A Systematic Approach for Improving Academic Performance*. New York: Human Services.

Wagner, E. (Fall 1997). Interactivity: From agents to outcomes. In T. E. Cyrs (Ed.), *New Directions for Teaching and Learning: Teaching and Learning at a Distance: What it Takes to Effectively Design, Deliver, and Evaluate Programs*. 71.

Wiggins, G. (1998). *Educative Assessment*. San Francisco: Jossey-Bass Publishers.

Yacht, C. & Everett, D. R. (April 1, 1999). Distance Learning presentation, NBEA Computer Education Task Force, Chicago, IL.

Chapter 5

Curriculum and Faculty Development in Distance Education

Sandra J. Nelson, Indiana State University
Constance H. McLaren, Indiana State University

With recent technological advances, post-secondary institutions are able to serve the needs of an increasingly larger number of place-bound students. In fact, one out of three post-secondary schools offered distance education programs during the 1997-98 academic year. Nearly 80 percent of the public four-year institutions and 66 percent of the public two-year institutions offered distance courses and 1.66 million students were enrolled in a distance course. Furthermore, 20 percent of the institutions not offering distance education programs during that time period plan to implement such programs in 2001-2002 ("Frequently Asked Questions...," January 2000).

Although many institutions have long been involved in reaching place-bound students through correspondence courses and other continuing education opportunities, today's distance education programs use technology and a variety of modalities to expand their curriculum and reach a wider group of students. As institutions make the commitment to offer curriculum using new distance education technologies, they must also devote resources to curriculum development and faculty training.

The information in this paper focuses on web-based curriculum design and faculty development by: (1) synthesizing best practices, (2) providing online resources, and (3) providing practical applications from educational research results. While web-based instruction is not the only form of mediated instruction, many of the issues that are central to curriculum development for online courses will be of benefit to those who are teaching with other media, such as compressed video.

Course, Instructor, and Content Selection

Courses that are developed for online delivery usually fall into two categories: (1) those courses that individual faculty would like to promote as distance classes and (2) those courses or programs that fulfill a school's distance mission.

Because institutions need to provide faculty development and training, a course management platform, and administrative support, they usually require an approval process prior to the start of course development. Some schools, such as Penn State, publish a guide, *The Penn State Distance Education Course Development Guide*, for prospective faculty. Institutions' curriculum review committees are usually involved in the approval process. Most schools have committees that must approve distance courses before they are offered. The Distance Education Curriculum Planning Committee at Penn State makes recommendations, and the Director of Distance Education Programs makes the final decision about initiating course development (http://www.outreach.psu.edu/DE/FacDev/faq.html#1).

Individual faculty members may propose distance courses to ease scheduling concerns, to serve a new population of students, to suit curricular materials, or to learn new skills that are transferable to the traditional classroom. However, faculty members may be less eager to participate in programs mandated by administrators than they are to develop their own projects for distance delivery. For further information on this topic, see the *Chronicle of Higher Education* transcript of the live discussion "Are Faculty Members Losing Control as Colleges Create Online Divisions?" at http://chronicle.com/colloquylive/transcripts/2000/06/20000607newman.htm).

Institutional missions are leading change agents for the development of distance classes. At Indiana State University, current distance education programs grew from a need to improve the educational attainment of the state's citizens through articulation agreements with associate degree granting institutions, the need to reach practicing educational professionals who wished to obtain graduate credit in educational administration, and the launch of a nationwide doctoral consortium in technology. The institution's long history of providing continuing education opportunities led to the development of the Division of Lifelong Learning. Distance courses remain under the supervision of academic departments, but the Division of Lifelong Learning provides support for faculty and students who are engaged in distance learning.

At institutions where distance classes are delivered by the existing faculty, content experts are usually those who teach the traditional version of the class and are willing to participate in distance education. Other institutions contract with faculty from outside their ranks to provide course content. Persons wanting to write content for a distance class are hired according to the regulations of that institution, and these regulations, and the responsibilities of the provider, vary greatly from one institution to another.

An alternate source of content is the textbook publisher, which offers content that corresponds with adopted textbooks and plugs into a school's platform. As an example, consider McGraw-Hill's Online Learning Centers (http://mhhe.com/). Ready-made material is available to load into WebCT, BlackBoard, and other platforms. The Instructor Resources section provides additional cases, notes, and links to related sites. The availability of this material is a strong marketing lever for publishers and can be extremely helpful for both the local and the distance instructor. For instructors who are designing their own web sites, however, it can be daunting to try to compete with the content and professional design resources available to a publisher.

Instructor Training

Once the courses, faculty, and content have been selected, instructors must be trained. Post-secondary institutions recognize that serving distance students effectively involves having well-trained instructors. The challenges facing faculty who teach distance courses can be overwhelming. Faculty members must make the transition from facing students in the traditional classroom to facing the complexities of technology to teach out-of-sight students. Faculty must make the following changes (Willis, 1994):

- Adapt traditionally-delivered courses to distanced modalities.
- Move from providing to facilitating the content.
- Learn to use the technology effectively.
- Adjust to teaching without being able to make eye contact with the students.
- Gain an understanding of the distance learner and an appreciation for the learner's life situation.

Instructors need professional development to become effective in distance teaching. Faculty members in the LearnAlaska Network identified the following development needs for distance teaching in their program (Moore, 1989):

- Discussion of time involved for development and teaching.
- Instruction in effective methods of communicating and interacting with distance students.
- Presentations of experiences from other faculty members.
- Strategies for adding visual interest to audio courses.
- Instruction on the planning, organization, and management of distance classes.
- Discussion on techniques to encourage class cohesion and motivation.

Faculty training for distance education courses at Indiana State University has evolved over the past several years. As more and more courses are being offered to serve distance students, staff training has developed into a rich and efficient process. The training program incorporates the expertise of individuals from many areas of the University. Instructional designers, librarians, educational theorists, faculty, and computer and video specialists are all involved in helping instructors move from the on-campus environment to the various distance modalities.

The Course Transformation Academy (CTA) was developed to provide a comprehensive training program for distance education course developers. Faculty members attend Course Transformation Academy sessions before developing courses for distance delivery. In the early years, the CTA required involvement of the instructor in theoretical and practical-experience sessions for a semester. Now that the University is committed to a rich distance education program, and as more faculty have been trained, University instructors attend CTA sessions from 9 a.m. to 5 p.m. for three days.

Taking advantage of knowledge concerning learners, the CTA sessions include theoretical discussions in the morning sessions and hands-on lab sessions in the afternoon. The content of the three-day sessions is outlined in Table 1.

Training and assistance continue after faculty members complete the Course Transformation Academy. Course Transformation Academy instructors/presenters all support faculty members throughout course development. Therefore, pedagogy, course development, and course management issues are addressed and supported in the comprehensive training program.

Instructor Certification

Although encouraged to participate in the three-day Course Transformation Academy, Indiana State's instructors are not formally certified as distance learning educators. However, other post-secondary schools offer certification programs.

In addition, The University of Wisconsin certification program requires participants to complete 20 (CEU) continuing education units or 200 study hours (10 hours per CEU). The program is offered by distance delivery, and individuals who participate have affiliation with such entities as industry, government, and post-secondary and secondary institutions. In addition, distance education certification is offered also through a program at The Teletraining Institute, Inc. (Bond & Finney, 2000).

Table 1
Course Transformation Academy Content

Course Transformation Academy
Educational theories: Instructional goals Learning objectives Learner analysis Assessment
Modalities for distance course delivery at ISU: Web-based and two-way video Lesson plan development Course organization Material preparation Demonstrations of modalities
Lab sessions: Web software instruction and hands-on practice PowerPoint instruction Presentations by faculty who teach distance courses Preparation of participant presentation Participant presentations and peer evaluation
Copyright issues
Services: Instructional designers Library Information Technology Faculty Computer Resource Center (material preparation assistance/ training)

Texas A & M University offers a five-day Distance Education CertificationProgram. To receive distance education certification, instructors must attend the 40-hour competency-based training, complete a group presentation, and complete an activity. California State University-Hayward offers a certificate in Online Teaching and Learning consisting of 4.5-unit courses. Furthermore, Athabasca University, Alberta, Canada, offers a graduate degree in distance education. In conjunction with the Utah State Office of Education, the Department of Instructional Technology at Utah State University developed a program to prepare teachers for distance education instruction. Individuals who complete the 12 semester-hour program receive a teaching certificate endorsement (Bond & Finney, 2000).

Course Design

After training in the pedagogy of distance teaching and the technical aspects of the platform, instructors are faced with developing the course. The Curriculum Committee at Cerritos College (California) suggests that faculty consider the following questions when developing distance classes (http://www3.cerritos.edu/ic/curriculum_committee.htm):

1. Are course objectives in the course outline being met?
2. Are standards of course quality, as written in the course outline, being met?
3. Is the class size appropriate?
4. Is there sufficient instructor-student contact?
5. How are attendance policies being addressed?
6. Are adequate instructional equipment, materials, and other resources available to make the distance course viable?
7. How will you address access for students with disabilities?

Faculty members at some institutions, like Indiana State University, have the benefit of working with a professional Instructional Designer in course development after training is complete. An instructional designer is a curriculum design expert who collaborates with faculty members on such topics as the nature and frequency of course assignments, software technical issues, and student interactions. The instructional designer's duties include broad organizational and content issues as well as such narrow responsibilities as editing (FAQs, Penn State, January 2000 at http://www.outreach.psu.edu/DE/FacDev/faq.html#1). In other words, instructional designers do everything from working with faculty on the conceptual design of courses to solving technical problems with posting materials.

While many instructors have the help of curriculum design experts, "What have I gotten myself into?" is a common question among beginning distance educators once they have agreed (or been persuaded by their dean or chairperson) to offer a distance class. From experience, there is a three-stage cycle of emotions. The first stage is a feeling of panic as the start of semester looms. It may be eighteen months until the course is to be offered, but the general feeling is that there is more to do than there is time to do it. The instructor is concerned with learning the platform that the students will use, is trying to determine how much content will need to be developed, and is worrying about the logistics of registration, communication, and evaluation.

The second stage is one of confidence (sometimes false!) that comes when the instructor has mastered BlackBoard, WebCT or whatever platform the school uses, has developed the syllabus, and is beginning to see the course take shape. The third stage is operational and requires flexibility. The time to teach the course has arrived, and the students will now test the materials. This is a very fulfilling time, but it is not a time for relaxation. Just as a good classroom teacher adjusts the materials to student needs, to current events, and to the personality of a particular group of students, the online teacher would be naïve to believe that once the course is developed, no changes will need to be made. Assume, too, that distance students will have even more disruptions than the classroom students have. Those who are working professionals will have changing requirements in their jobs, may take scheduled vacations or work overtime, or may change positions over the course of the semester. It is also realistic to expect that hardware problems will disrupt some of the students at some time during the semester. Designing the course site for flexibility and to make navigation as easy as possible will pay dividends as the course is taught. Beginning distance educators may be awed by the rich variety of media available to them and like a greedy child may end up in some distress if they try to use all of it. Others may have so much fun playing with graphics and special effects that their site is all style and little substance. Good instructional design principles aid faculty in understanding what embellishments are helpful.

That warning aside, distance classes can certainly be enriched by graphics and multimedia. Imagine how useful it is for a distance student to see on the screen a photograph of a painting, or to hear an audio clip of a speech, or to watch a video clip of a documentary. Most instructors will need some assistance to incorporate these features into an online course. Practical considerations of sources, lead-time for help, and hardware and software limitations for both the hosting institution and the student recipient should guide the choice of materials to include.

At Indiana State University, experts at the Faculty Computing Resource Center are available to help with graphics and other additions to the basic pedagogy. This collaboration can lead to a much richer student experience than the faculty member, working alone, could create. For an online quantitative course, a videotape, complete with animation, was developed to help web students see the process of a complicated quantitative algorithm. The instructor was videotaped as the technique was demonstrated, and when the finer calculations needed to be done, animation was inserted so that the students could see exactly what steps occurred. The online students ordered this tape if they wished and were able to

watch and to rewind the tape at their leisure until they understood the concept. Bandwidth limitations prevented inclusion of this video on the course site, but the students seemed to enjoy the ability to pop the tape into their VCRs.

Experienced classroom faculty members have a sense of how their students learn. They understand that there will be topics that require additional explanations, and they anticipate the questions and rough spots that will arise. When the distance factor is added to the experience, faculty have to be particularly adept at planning for the complications mediated delivery adds to the normal challenges of the material. One suggestion is that the instructor examine the course materials from the point of view of a distance student. Teaching face to face allows instructors to judge the pace from the students' expressions and reactions. How will the distance teacher compensate for the lack of that information?

One way to forestall problems with difficult concepts is to make a variety of alternative presentations available for the students. The danger with this is that so much material may be posted that it becomes difficult for the student to know what material is essential. The instructor can help by following several guidelines:

- Be very clear about what material is required reading and what is optional.
- Provide material for a variety of learning styles.
  - o use illustrations, demonstrations, graphs, and diagrams for visual learners.
  - o set up discussion frameworks for those who need to express their ideas verbally.
  - o provide practice exercises, with solutions, for those who need hands-on work.
  - o break the content with a timely question and answer.
- Avoid overloading the course site with links to appropriate web sites. Although instructors may appreciate the vast array of pertinent information, flooding the site with other references can be overwhelming to students if this is not a literature review course.

A common fear voiced by distance students is that they will miss out on communication with the faculty member. This statement, the response to the initial survey question "What else is important for me to know about you in connection with this class?" is typical: "*I like the student and teacher contact that ISU allows and I am nervous because this web course will not allow me that personal attention.*"

Instructors' use of chat, discussion boards, email, and the other communication tools that come with course platforms can make students feel more connected to each other and to the instructor and institution. In addition, prompt return of assignments, complete with comments, will help students learn and help students feel that they are not disadvantaged.

Consider, then, the additional challenges faced by distance students who face some sort of disability. An excellent discussion of both the legal background of this issue and practical advice for making adjustments to the distance learning environment can be found in the paper *Accessible Web-based Distance Education: Principles and Best Practices* by Laurie Harrison of the University of Toronto(http://www.utoronto.ca/atrc/rd/library/papers/accDistanceEducation.html).

Good course design principles are readily available from a number of sources, both online and in print. One especially useful reference to a large number of super-sites is at http://www.slis.uwm.edu/webstudy/related_web_sites.htm. A link found here is to the University of Wisconsin-Extension Distance Education Clearinghouse, at http://www.uwex.edu/disted/home.html. After accessing this site, the interested reader will find links to a large number of articles dealing with design principles and online learning.

Another particularly useful link is to the Illinois Online Network (ION) at http://illinois.online.uillinois.edu/index.html. At this site there are collections of resources, including several for Instructional Design for Online Course Development. Articles such as "An Online Course in a Nutshell," "Learning Styles and the Online Environment," and "Alternatives to the Online Lecture" appear here. Another excellent resource comes from the University of Texas (http://www.utexas.edu/cc/cit/de/deprimer/instructional.html) and the document, *Distance Education: A Primer*. At this site you will find links to design issues, including an Instructional Design Process Model.

A Web search on the phrase "Distance Education Curriculum" yields over 243,000 hits. Individuals, government agencies, universities, and professional organizations have posted online journals, top ten lists, monographs, and reams of advice for those who are participating in this arena. Additional websites are listed in Table 2.

Table 2
Useful Online References for Distance Education

References	
Super sites	**http://www.slis.uwm.edu/webstudy/related_web_sites.htm** http://www.itcnetwork.org/reports.htm Instructional Telecommunications Council http://www.usdla.org/04_research_info.htm US Distance Learning Association http://www.adec.edu/ American Distance Education Consortium http://www.nucea.edu/ University Continuing Education Association http://merlot.csuchico.edu/Home.po Merlot
Grants and Agencies	FIPSE http://www.ed.gov/offices/OPE/FIPSE/Comp/intro.html LAAP http://www.ed.gov/offices/OPE/FIPSE/learnany.html
Collections of Best Practices	http://www.open.uoguelph.ca/about/bestprac.html http://www.rit.edu/~609www/ch/faculty/best.htm http://www.umuc.edu/ide/modlmenu.html http://www.adec.edu/ideal/iric-d_checklist.html The Distance Education Consultant: http://waltoncollege.uark.edu/disted/Default.htm
University sponsored distance sites	Illinois http://illinois.online.uillinois.edu/IONresources/index.html Penn State http://www.outreach.psu.edu/DE/FacDev/faq.html#1 Wisconsin http://www.uwex.edu/disted/definition.html Texas http://www.utexas.edu/cc/cit/de/deprimer/instructional.html UNC http://www.unc.edu/cit/ University of Tennessee, Knoxville http://www.outreach.utk.edu/weblearning/ University of NC at Greensboro http://www.uncg.edu/tlc/

continued

Non-business distance education sites	Social Work: http://www.cswe.org/distance.htm Visual Arts: http://www.c5.cl/ieinvestiga/actas/ribie98/113.html Sonography: http://gwis2.circ.gwu.edu/~cismail/orlandolec/ Crimology (partnership with Wadsworth and Florida State): http://www.fsu.edu/~crimdo/fsu2.html Applied Linguistics: http://www.gial.org/academics/dist-ed.htm Engineering: http://www.uidaho.edu/evo/dist11.html General Education: http://www.press.jhu.edu/journals/journal_of_general_education/v049/49.1childers.html Agriculture: http://statewide.orst.edu/degrees/bachelors/agcurriculum.html

The next generation of distance course design is being developed at Indiana State University. The University has obtained a LAAP (Learning Anytime Anyplace Partnership) grant from the U.S. Department of Education to develop a "Virtual Instructional Designer" or VID. Associate project director Paula Vincini, an instructional designer, envisions that this online tool will enable instructors to transform courses and incorporate best design principles without the assistance of a resident instructional designer. Work on this grant has led to a definition of 100 indicators of quality in a distance course.

Course Modification, Revision, and Updates

At the completion of a distance course, it is important for the faculty member to plan for modification and revision. An instructor's journal that is kept for the duration of the course can be an excellent tool when revisions are made. Instructors should anticipate that revisions would need to be made even if the textbook or course content has not changed significantly since the last time the course was offered.

Operating under the assumption that once a distance class has been developed, little additional work will be required is dangerous to both students and the instructor. Even in disciplines without rapid change in content, good pedagogy requires that the instructor continually assess the effectiveness of the materials and make additions and changes in real time. While most instructors would have access to instructional designers for editing consultation, the instructor must know how to edit, load, and reload course materials without reliance on the services of someone else. In addition, effective instructors will always notify

students when a change is made to the site. Students need to know if the instructor replaced the syllabus file that had the wrong exam date or if the instructor added a technical note that will help them understand a particularly difficult topic.

A fallacy that has affected this medium is that a course can be developed and put "in the bank" by one faculty member and taken out and taught in the future by another one. Experience has shown that this rarely works in a seamless fashion. While it is helpful to inherit the materials and activities planned by another instructor, good pedagogy demands that the instructor of record be sufficiently connected to the material. Even with the best of up-to-date materials, it is impractical to assume that new instructors will not want to add their imprint to courses developed by others.

Assessment

After the distance courses are developed and are online, assessment takes place. With the proliferation of on-line courses, higher-education institutions are concerned about quality and are developing content and instructional assessment tools. One such evaluation is being conducted by the Merlot project. Academic sites on the World Wide Web are being evaluated by Merlot, a guide to online teaching materials. Merlot started as collaboration among the California State University System, The University System of Georgia, the University of North Carolina system, the Oklahoma State Regents, and the State Higher Education Executive Officers, a national association. Twelve-members teams from biology, physics, teacher education, and business are reviewing the teaching elements. Three reviewers examine the visual simulation, animations, tutorials, and exercises available. The evaluation is similar to the process used for academic journal submissions. In the future, instructors may be able to incorporate highly-rated modules into their courses. Use of the modules (Young, 2000) may be free or may require a small fee. In addition to Merlot, institutional oversight committees, academic program committees, assessment groups, and accrediting agencies are all concerned that distance students receive a comparable experience to traditional on-campus instruction.

Standardization of the content in distance classes is particularly important when the distance class is another section of an on-campus multi-section course and assessment becomes critical. If a class offered as a distance class is a prerequisite for other classes in a degree program, it is imperative that the distance students have the same experience as the students in the campus section. This concerns not only the content of the course, but also the labs, library experiences,

software and hardware, instructor access, and group experiences that are customary in the campus version of the class.

Content in distance courses should be assessed in the same manner as content in on-campus courses. Whether this assessment comes from master course outlines for multi-section courses, established departmental learning objectives, or curriculum review committees, distance courses should offer students the opportunity to learn the same topics as their resident counterparts receive.

The delivery method, however, indicates that the content may very well be presented in different ways. Consider, for example, an on-campus class that makes heavy use of experiential exercises to illustrate concepts. There is nothing to prevent a distance class from also using experiential exercises, but the asynchronous nature of the class will dictate a different sort of exercise. It is important to conduct a rigorous assessment of the distance class to determine if the learning is as effective in the distance class as it is in the local class.

The School of Business at Indiana State University is in the process of developing a web-based course policy. A portion of that policy concerns content assessment. In the plan being considered, the Curriculum and Academic Affairs Committee (CAAC), composed of faculty members, would review web-based courses to determine whether the course content is comparable to on-campus classes, review content assessment instruments for web-based courses, and analyze the results of the assessment instruments.

San Diego State University uses their academic review process to evaluate effectiveness of distance courses. Included in the review is an evaluation of student-based learning outcomes, retention, and satisfaction. San Diego State reviewers also evaluate the extent to which distance courses conform to distance education quality standards (http://www-rohan.sdsu.edu/dept/senate/sendoc/distanceed.apr2000.html).

Student Course and Faculty Evaluations

Developing an effective instrument for evaluation of distance courses by students is a thorny issue on many campuses. Schools that mandate the use of a common instrument and have policies for conditions for administration of the instrument will find that it is difficult to ensure both the integrity and applicability of the instrument to the distance course. This is a particular problem if the results of the evaluation are used for summative purposes.

Alternatively, the anonymous survey provisions of course platforms make ongoing course evaluation much easier to obtain in an online distance course than in a traditional course. The instructor can post a survey to gather immediate feedback on a specific topic, or can have initial, midcourse, and final course evaluation instruments. Surveys are effective to learn how the students are responding to the content, the activities, and the medium. Figure 1 shows the midterm course assessment given to an online business statistics class. Allowing open-ended responses is particularly useful for obtaining feedback.

The logistics of student evaluations of faculty are a bit more complicated. Institutions that have a standard, mandatory course and instructor evaluation system will need to provide a way to distribute the forms to students in a timely manner and arrange for their return to a secure location. Distance students may need to be given additional urging to participate in this sort of evaluation. The institution also should realize that some of the standard evaluation questions may not be pertinent to the distance classroom and that additional targeted questions should be included.

Faculty Workload and Compensation

Based on anecdotal evidence, developing a distance education course takes two to three times longer than on-campus courses, teaching consumes more faculty time, and communicating by distance with students is reported to be more time consuming than with on-campus students (American Association of University Professors, http://www.aaup.org/deguide.htm). Faculty workload in distance education courses has is a critical issue.

The American Association of University Professors developed a statement on workload for distance education courses and that statement includes the following items:

- Class enrollment should be based on pedagogy.
- Faculty should be compensated for distance education course development.
- Courses may be taught on-load or off-load.
- Faculty teaching a distance education course for the first time should be given a reduced workload (http://www.aaup.org/deguide.htm).

Only tenured and tenure-track faculty at Indiana State University teach web-based courses in the School of Business. At the University, the teaching workload for tenured and tenure-track faculty is 12 hours per semester, but the School of Business faculty have a teaching workload of 9 semester hours with research

Figure 1
Sample Online Midterm Course Evaluation

Midterm Course Evaluation

Your answers to this questionnaire will help me understand how to make this delivery method more effective.

Likert-Type Responses:

Instructions: Please check the most appropriate response for each statement. (A Likert-type scale was provided for each statement.)

My scores are a fair reflection of my understanding of the material.

The following is an example of a Likert-type response set for this response.

- I know more than my scores show.
- My scores are about right.
- I don't know as much as my scores indicate.
- I have not submitted all the materials.

My math background is sufficient for this course.

My statistical background is sufficient for this course.

My computer background is sufficient for doing the problems in this course.

The amount of work required for this course is too heavy

Open Response Questions:

Does the amount/quality of explanatory material posted help you? Explain your response.

Do you feel that the ease of submitting and receiving your homework and tests is sufficient? Explain your response.

Do you feel that the communication opportunities are sufficient? Explain your response.

What can I do to make the rest of the semester better for you? What do you need to do to make the rest of the semester better?

expectations. The web-based courses may, however, be taught on-load or off-load based on a chairperson's decision. The chairperson makes the load determination based on an analysis of the total courses taught in the department.

The University compensates faculty members for development of a web course and compensates the department for web-based courses taught as part of the DegreeLink program, a degree-completion program articulated with Indiana two-year institutions. Faculty members are compensated out of these funds if they are teaching the course off-load.

Copyright and Intellectual Property

Consideration of copyright and intellectual policy issues is critical in light of the explosion of web-based courses in many institutions. The copyright and intellectual property problems within an institution and its faculty are compounded by the emergence of efforts from other universities to hire successful faculty from one institution to write course materials for another. The following questions arise (Sanoff, 2000):

- Who owns course materials?
- Can an institution claim a portion of the funds received by faculty members for developing course material to be distributed by another institution?
- Does a faculty member have the right to develop course material for another institution without approval by the resident institution?
- Is the faculty member entitled to a share of profits from his/her course material distributed by the resident institution?

The American Association of University Professors has addressed these issues and has issued a *Statement on Copyright* (American Association of University Professors, http://www.aaup.org/ipguide.htm). Three circumstances are outlined in the document to describe instances where the university has the copyright:

- the institution directs a faculty member to develop specific materials or where the development of the materials is a requirement of employment.
- the faculty member has transferred the copyright to the institution.
- the institution has contributed to a "joint work" (institution supplies specialized services beyond that traditionally provided to faculty).

Post-secondary institutions have devised various methods of handling these issues. One instructor at Cornell developed distance education courses that Cornell is selling to other institutions, and Cornell gets all the payments. At Georgia Institute of Technology, the institution and the instructor's department share in the funds received from distance education classes (Sanoff, 2000).

Other institutions have faced the situation as well. At Mott Community College, the college owns the web site and videotapes, and the instructors own the content of the on-line courses. The University of Texas System has taken the issue one step further. While instructors have ownership of web courses, the System has ownership in a "paid-for-service" situation. Burlington County College, however, claims ownership of the intellectual property for on-line courses. Faculty members at the University of Missouri at Columbia retain ownership of on-line courses, control how the courses are used, and retain control if they change employment (Carnevale & Young, 1999).

With more on-line institutions emerging, traditional institutions will be facing more complex problems when faculty sell materials to the on-line institutions or leave to work for such institutions (particularly, the best instructors). The best instructors may see working for on-line institutions as a way of becoming more well-known and attracting consulting opportunities (Carnevale & Young, 1999). A complex problem arose at Harvard University law school when a professor prepared materials for an on-line institution, and the law school objected. The law school now requires that faculty obtain prior approval to develop materials for on-line institutions (Sanoff, 2000).

Intellectual property rights for both faculty members and the institution is a topic of prime importance with distance education at Indiana State University. Instructors who develop web-based courses are asked to sign an agreement. In the agreement, the faculty member determines the number of years the institution has an exclusive right to use the material. Also, faculty members determine how many years the University can use materials after employment ceases.

Exemplary Programs

The Instructional Telecommunications Council sponsors an award for community college distance classes and individual instructors. Many institutions sponsor awards for classes within their systems and reward particularly effective instructors. Institutions that have made a strong and successful commitment to distance education are recognized as leaders in the field. They frequently offer not only a catalog of distance courses, but also serve as a clearinghouse for scholarly information about distance education. However, without a national Baldrige-type award or other recognized determinant of quality, exemplary distance education classes and programs are judged to be superior based on their experience, their audience, their accreditations, and their success. Information on a University of Texas website (http://www.utexas.edu/cc/cit/de/deprimer/model.html) points to the following schools as model programs:

Athabasca University
The Open University
The Education Network of Maine
The University of Wisconsin,Extension
The Pennsylvania State University
The Western Governor's University
The California State University System
The University of Phoenix

Additional Considerations

Curriculum and faculty development for distance education courses is, indeed, a complex subject. At Indiana State University, a "blue ribbon" task force has been charged with reviewing the University's existing policies for the development, operation, and funding of distance courses. It is clear that over the next five years, institutions involved in distance education will find that it is impossible to consider curriculum, enrollment, staffing and faculty development, fees, scheduling, compensation, and technological support decisions for distance classes as separate from one another. Currently, however, it appears that the guidelines are being developed at some institutions almost in tandem with the courses and the training. With the rapid development of distance courses, it will take some time for the pedagogy and policies to be fully developed. However, the enterprising and curious instructor who is willing to search has ample resources from which to make a selection. Within the next few years, it will be interesting to watch and to participate in the extraordinary educational phenomenon of distance instruction.

References

Academic Policy and Planning Committee Distance Education Policy. (2000, April 6) San Diego State University. Retrieved January 21, 2001 from the World Wide Web: http://www-rohan.sdsu.edu/dept/senate/sendoc/distanceed.apr2000.html

American Association of University Professors. Special Committee on Distance Education and Intellectual Property Issues. Suggestions and Guidelines, Sample Language for Institutional Policies and Contract Language. http://www.aaup.org/ipguide.htm.

Are Faculty Members Losing Control as Colleges Create Online Divisions? (2000, June 7). *Chronicle of High Education*. Retrieved January 21, 2001 from

the World Wide Web: http://chronicle.com/colloquylive/transcripts/2000/06/20000607newman.htm

Bond, S. L., & Finney, P. B. (2000). Certifying teachers as distance education specialists. *T.H.E. Journal*, 17(9), 22-30.

Carnevale, D., & Young, J. R. (December 17, 1999). Who owns on-line courses? Colleges and professors sort it out. *The Chronicle of Higher Education*. *46*(17), A45-A46.

Curriculum Committee Distance Education Questions. (n.d.) Cerritos College. Retrieved January 21, 2001 from the World Wide Web: http://www3.cerritos.edu/ic/curriculum_committee.htm

Frequently Asked Questions About Distance Education (September 11, 2000). Division of Government and Public Affairs, ACE Fact Sheet on Distance Education [on-line], http://www.acenet.edu.

Frequently Asked Questions for Developing a Course for Delivery through Distance Education. (n.d.) Pennsylvania State University. Retrieved January 21, 2001 from the World Wide Web: http://www.outreach.psu.edu/DE/FacDev/faq.html#1

Harrison, L. (n.d.). *Accessible Web-based Distance Education: Principles and Best Practices*. University of Toronto. Retrieved January 21, 2001 from the World Wide Web: http://www.utoronto.ca/atrc/rd/library/papers/accDistanceEducation.html

Moore, M. G. (1989). Effects of distance learning: A summary of the literature: Paper for the Congress of the United States, Office of Technology Assessment. Washington, D.C.: Office of Technology Assessment, 1-34.

National Association of College Stores (NACS), Inc. and Association of American Publishers (AAP) (1991). Questions and answers on copyright for the campus community: National Association of College Stores, Inc., Oberlin, OH.

Sanoff, A. P. (2000). Whose property is it anyway? *ASEE Prism*, *9*(9), 18-21.

Willis, B. (1994). Enhancing faculty effectiveness in distance education. In B. Willis (Ed.), *Distance Education Strategies and Tools* (pp.277-290). Englewood Cliffs, NJ: Educational Technology Publications.

Young, J. R. (2000). New project brings peer review to web materials for teaching. *The Chronicle of Higher Education*, *46*(47), A56.

Chapter 6

Research in Distance Education

Diane Kruger, Southwestern Illinois College

"We believe that business educators must continue to learn about distance learning and investigate appropriate applications for their programs . . . . Business educators should assume the responsibility for determining appropriate uses of distance learning to enhance program quality and facilitate learning . . . .We believe that the assessment of a distance learning program encompasses the system used, learned competencies, course standards, and teacher effectiveness" (Policies Commission for Business and Economic Education Members, 1999, pp. 26-27). These timely pronouncements are excerpts from Policy Statement No. 65, "This We Believe About Distance Learning in Business Education." Also referenced in the statement are four questions that business educators might consider in their research to determine if distance learning is an appropriate delivery system for their programs:

- How can knowledge and skills be acquired effectively through distance learning?
- What can and should business education offer learners through distance education to enable them to develop the competencies they need?
- What business education courses are appropriate in the distance learning milieu?
- How are economic efficiency and learning effectiveness balanced in the distance learning environment? (Policies Commission for Business and Economic Education Members, 1999, p. 27)

Business educators are not alone in looking for answers to questions about distance learning. A storm of controversy has recently erupted regarding the amount, quality, and effectiveness of research in distance education. Why is this research becoming so important?

Distance learning was once, according to Merisotis and Phipps (1999), a poor and often unwelcome stepchild within the academic community and has become a more visible as a part of the higher education family. They note that, as with other educational innovations that have come before it, there is some danger that the innovations made possible through distance education may be advancing more rapidly than our understanding of its practical issues.

Findings of the National Center for Education Statistics (NCES) of the United States Department of Education (USDE) show that, in 1997-98 distance-based courses were offered by almost 44 percent of all higher education institutions; this was an increase of 33 percent from 1994-95 (Institute for Higher Education Policy, 2000). Distance courses were more likely to be offered at public, rather than private, postsecondary institutions, with 78 percent of public four-year and 62 percent of public two-year colleges offering some form of distance education. Only 19 percent of private four-year and only 5 percent of private two-year colleges offered distance learning in 1997-98. The vast majority of this growth in distance education can be attributed to higher education institutions offering courses via asynchronous computer-based technology, primarily over the Internet.

For the past 20 years, the primary delivery modes for distance education have been videotapes and closed circuit television. However, the Internet has altered the distance learning landscape over the past two years. The scope, content, and delivery of distance education have dramatically changed, and distance learning courses are more readily available than ever before. In Illinois alone, enrollment in Internet courses increased from 5,887 in the fall of 1999 to 9,888 in the spring/winter of 2000, an increase of 68 percent, accounting for 35 percent of the total increase for all distance education in Illinois during that period (Illinois Virtual Campus, 2000).

Holleque (in Chaffee, 2001) has come up with some startling statistics on student computer use. She found that:

- 92 percent of students use their computers daily.
- 85 percent access the Internet and 93 percent use e-mail at least daily.
- 77 percent report having more communication with faculty because of computer availability.
- 84 percent say it is now easier to be more actively involved in learning.
- 83 percent say computer use helps them take more responsibility for their learning.
- 83 percent say computer use helps them better integrate and organize knowledge in meaningful ways.
- 91 percent say technologies enhance learning.

Research Questions

Research in distance learning is not new. For many years, researchers have conducted studies to determine whether courses delivered at a distance can provide

the same level of academic excellence as courses delivered via traditional modes. Researchers' questions (California Distance Learning Project, 1999) tend to fall into five main areas:

1. Is technology-assisted, distant teaching as effective as traditional face-to-face teaching?
2. What factors determine the most effective mix of technology in a given distant teaching situation?
3. What are the characteristics of effective distant students and teachers?
4. How important is teacher-student and student-student interaction in the distance education process, and in what form(s) can this interaction most effectively take place?
5. What costs should be considered when planning or implementing distance education programs, and how are those costs offset by benefit to the learner?

Distance vs. Traditional Education

Proponents of distance education contend that the findings show that distance learning is as good as traditional education. The instructional format seems to have little effect on student achievement, assuming that the delivery technique is appropriate to the course content and that all students have access to the same technology (California Distance Learning Project, 1999). Students and faculty in the University of Phoenix Online Program perceived the online mode as an appropriate delivery method for higher education. Students indicated that they received a comparable academic product through online instruction (Goodwin, 1993). Souder (1993) found that distance students tended to score higher on tests than traditional students. In a study by Martin and Rainey (1993), no significant difference was found in positive attitudes toward course material between distance and traditional education.

After analyzing data collected in a study of 123 students enrolled in Psychology 111, a distance education and a traditional classroom course at the University of Alaska Anchorage, Anderson (1993) found no statistically significant difference between the number of successful completers of distance education courses as compared to successful completers of traditional classroom courses. Findings also indicated that areas of learning style and learning readiness had no effect on successful completion rates of the two groups. Bartel (1998) also found no statistically significant difference in performance between on-campus and distance students in computer applications classes at Utah State University. Rueschman (1998) on the effectiveness of alternative distance education strategies, no significant difference was found between student perceptions and attitudes using interactive instructional television and computer-mediated instruction.

Effectiveness of Technology

Most researchers of distance education conclude that the same qualities which make effective traditional teachers are also evident in effective distance teachers. However, researchers also agree that distance teaching and its technologies require extensive planning and preparation (Schlosser & Anderson, 1994). Distance education teachers must perform extensive pre-planning of courses and evaluation techniques. Teachers of distance education must also be properly trained both in the use of the equipment and in effective distance learning teaching techniques (Egan, Sebastian, & Welch, 1991).

Gillispie (1996) revealed that in order for business faculty to use computer-mediated communication in their courses, they needed adequate support, training, equipment, and software. Kodali (1998) found that online instructional strategies are less teacher-centered and more student-centered than in traditional classrooms. Armstrong (1998), when researching faculty strategies for learning to teach distance education courses, found that six main themes emerged:

1. Institutional and personal influences stimulate faculty members to initiate their learning projects;
2. People are used as the primary channel by which to find resources and as the primary resource;
3. The availability, accessibility, variety and visibility of resources in the local institutional environment affects the quantity of learning strategies used;
4. Learning strategies used vary with experience, gender, and institution; however, learning by doing was the most important strategy used;
5. Learning success is assessed primarily on student outcomes supplemented by student evaluations;
6. Faculty members who continue to teach at a distance and switch to a different mode of instructional technology appear to use multiple learning strategies when multiple local resources are available.

Teacher and Student Characteristics and Attitudes

Bebko (1998), in a two-site qualitative analysis, found that faculty members who were most likely to use technology-based distance education held four primary beliefs: (a) Distance education can produce a quality learning experience; (b) distance education will better meet student needs; (c) the instructors are capable of developing and/or delivering distance education effectively; and (d) it is to the instructor's advantage to develop and/or deliver distance education courses. Betts (1998) determined that academic division, age, and non-tenure status significantly influenced faculty participation in distance education.

Just as distance education teachers tend to fit a certain profile, so do distance education students. They are voluntarily seeking further education, they are self-disciplined and highly motivated, and they are typically older than the average student. Successful distance learners also possess other characteristics which studies show help to determine success for both distance and traditional learners. These are willingness to call or ask instructors for assistance and possession of a more serious attitude toward the course (California Distance Learning Project, 1999). Computer literacy and familiarity with technology were found (Brouard, 1996)to be significantly related to greater overall student satisfaction in distance education courses. Clow (1998) found motivation to be the most useful variable in predicting academic success in distance learning courses.

Interaction in the Distance Education Classroom

Studies have shown that interaction between student and instructor is vital in the learning process. After reviewing these studies, Bloom (1981) concluded that the interaction between teachers and students in the classroom was the major factor in accounting for the cognitive learning of the students, their interest in the school subjects and school learning, and their confidence in their own learning capabilities.

More recent articles have stressed the importance of active learning. According to Weimer (1993), when students are actively engaged in their own learning, they not only learn more, but they can apply the learning better in their continuing education.

McHenry and Bozik (1995) raised the issue, often mentioned by critics of distance education, of the role of classroom interaction when students and teachers are separated by distance and linked by technology. The consensus of distance education practitioners seems to be that instructors of distance learning cannot just assume that effective interaction and communication will take place; they must provide opportunities for teacher/student and student/student interaction and promote participation (Barker, Frisbie, & Patrick, 1989).

According to Kruh and Murphy (1990), it is essential that distance education instructors purposefully integrate this essential ingredient into the instructional programs. This idea was reinforced by Mccabe (1997) who studied interaction in three distance learning classes. In two of the three courses studied, a high level of interaction and satisfaction among students was found; however, interaction was sparse in the third course. The data suggest that frequent participation by instructors as well as explicit identification of expectations are essential factors to a healthy online discussion. Threlkeld, Behm, and Shiflett (1990) found that

students who described themselves as more interactive in a distance education environment tended to perform better, to enjoy the course more, and to feel more a part of the class.

Research findings are consistent in stating that student-to-student and student-to-teacher interaction are vital in the distance education environment. Many distance learners require support and guidance in order to succeed in this environment (Threlkeld & Brzoska, 1994). Findings have produced some important guidelines for distance learning teachers. Egan, Sebastian, & Welch (1991) found that timely feedback regarding course assignments, exams, and projects is valued by distance learners. Frequent contact with the instructor motivates learners in a distance learning environment (Coldeway, MacRury, & Spencer, 1980). Becker's (1999) findings showed that students in a distance learning environment felt no frustration at only having remote access to the instructor. Small group interaction is also valuable in providing support and encouragement (California Distance Learning Project, 1999). McMillan (1997) determined that e-mail discussions facilitate learning for non-traditional higher education students.

Cost of Distance Education

One of the main considerations by an institution when contemplating the establishment of a distance education program is cost. Several cost components factor into this decision (Threlkeld & Brzoska, 1994). These costs include the technology itself, access and transmission, infrastructure, course development, support, and personnel. A question which institutions must ask when making the decision to offer distance education is whether it is part of their mission to offer programs to those who might not be reached otherwise.

The primary benefit to institutions might be the increased enrollment of non-traditional students who would not otherwise be taking courses (California Distance Learning Project, 1999). Research suggests (Ludlow, 1994) that as distance learning programs become more efficient, program costs should decrease.

Quality of Distance Education Research

Despite the large volume of written material on distance learning, according to Phipps and Merisotis (1999), there is a lack of good, original research dedicated to explaining or predicting the phenomena related to it. This frank statement is found in a report issued by the Institute for Higher Education. This report, commissioned by the American Federation of Teachers (AFT) and the National Education Association (NEA), was an effort to find answers to frequently asked questions and issues. These questions are becoming more and more important as pressure grows for higher education institutions to use technology as a primary method of delivery (Phipps & Merisotis, 1999). The report states that very few of the many articles and reports published recently on distance education

involve original research on the effectiveness of the practice. The institute's report, which was based on a review of 300 publications, indicates that, of the original research that has been done, much of it is of questionable quality to the extent that many of the findings become inconclusive (Blumenstyk & McCollum, 1999). Critics list the following shortcomings of the research:

- Because much of the research does not control for extraneous variables, it cannot show cause and effect.
- The research seldom uses randomly selected subjects.
- The instruments used to measure student outcomes and attitudes are not controlled for reliability and validity; thus, the readers cannot have confidence in the results.
- Many of the studies do not control for reactive effects, i.e. the feelings and attitudes of students and faculty.
- The research focuses too heavily on individual courses rather than technology-driven program effectiveness, leaving unanswered the question of how an academic program delivered totally by distance would compare with a traditional academic program.
- Individual differences among students are not considered in the research. The research tends to focus on distance groups of learners vs. traditional groups of learners. Factors not considered include gender, age, and educational experience.
- The research does not focus on the effects of virtual libraries on academic programs. Anecdotal evidence actually seems to suggest that some educational and curriculum objectives have been altered due to the lack of an adequate digital library (Phipps & Merisotis, 1999).
- The research does not consider the high dropout rates of distance learners. If a substantial number of students fail to complete their courses, according to Blumenstyk and McCollum (1999), the notion of access is meaningless. Phipps and Merisotis (1999) point out that by excluding dropouts from research, possibly the findings are tilted toward successful students only.
- Different learning styles of students as they relate to particular technologies are not considered in the research.
- A theoretical or conceptual framework is typically not included in the research (Phipps & Merisotis, 1999). Such guiding frameworks could allow the research to be replicated and might enhance its generality, thereby making individual studies more meaningful.

Brown and Wack (1999) claim that critics of distance learning, such as Phipps and Merisotis, were too harsh in their judgment. Brown and Wack believe that more critical reading is warranted.

One criticism is that Phipps and Merisotis (1999), after having reviewed only 40 original studies, assert that an entire body of research should be developed to

determine whether students participating in distance learning for their whole program compare favorably with students taught in the conventional classroom. According to Brown and Wack (1999), this is overly simplistic. They feel that the real underlying questions should include:

- What do we know of the outcomes of whole programs for campus-based students?
- How valid and reliable are the data?
- What proportion of distance students take a 'whole program' rather than individual courses?
- Are the student demographics comparable between a campus-based program and its distance counterpart?

Another concern of Brown and Wack is the criteria of selection for the research to review. Phipps and Merisotis (1999) claim that there is little original research that explains or predicts phenomena related to distance learning. Brown and Wack question, in this context, the meaning of "original." They are concerned that a considerable percentage of the studies cited have not passed through the process of peer review for publication. Many of the referenced studies were papers presented at conferences or published by university offices, not university presses. They further indicate that many contradictions are found in Phipps and Merisotis' critique of distance learning research. They believe that Phipps and Merisotis are expecting research on distance learning to carry a higher burden of proof than most other social, scientific, or educational research. They contend that questions of validity and reliability of the instruments used to measure student outcomes and attitudes could be applied just as much to traditional classes as to distance classes. Brown and Wack question whether publications that so aggressively targets distance programs should have far-reaching effects that elicit such negative reaction to distance education.

Diaz (2000) analyzed the endeavors of researchers over the years as they have tried to determine whether distance education could provide the same level of academic excellence as courses taught in traditional modes. In reviewing much of the research from the 1980s and 1990s, Moore and Thompson (1990, 1997) concluded that distance learning was considered effective when effectiveness was measured by the learning achievement, by student and teacher attitudes, and by return on investment. They also noted, however, that weak designs were found in many research studies, specifically in regard to control of the populations being studied, the treatments administered, and the statistical techniques applied. Phipps and Merisotis (1999) contended that the results of distance learning research have actually been made inconclusive because of purported defects in the studies. Brown and Wack (2000) took an opposing view, as mentioned earlier, suggesting that distance education research may have been unjustly sub-

jected to a higher burden of proof than other scientific and educational research projects. And the debate goes on.

Diaz made some valid points in the commentary. He states that researchers, in conducting comparative research, often ask the same basic research question of whether distance education is as good as, or better than, traditional education. This inquiry is based on the assumption that the ideal mode of educational delivery is the traditional classroom, against which all other alternatives are measured. According to Diaz, this assumption is untenable simply because there is no way to determine that one class method is better than another without first agreeing on the criteria for such a determination.

Another problem with comparative research, according to Diaz, is that it seldom defines the meaning of "traditional" or even "distance" education. Saba (1998) observed that comparative studies often fail to adequately define 'traditional' education or present a sufficient differentiation between traditional and computer mediated education. According to Ehrmann (1995), comparisons between traditional and distance education cannot be justified unless the processes being compared are explicitly defined. Without this distinction, the validity of the research is threatened.

Diaz (2000) answers Phipps and Merisotis' contention that most of the research on distance education does not randomly select subjects by claiming that random selection is not practical. According to Diaz:

> The reality of enrollment patterns is that students will self-select into courses based on reasons important to them, such as preferences for certain teachers, or locations, or personal schedules. Randomizing subjects in a distance study may increase generalizability in theory, but in practice many of the findings are not likely to be useful, unless one assumes that students who are randomly assigned are representative of those who self-select into a course (p. 2).

Regarding research design, Diaz contends that the design of much of current distance education research is based on the preferred learning theory of the distance researcher. In a traditional lecture class, instruction is teacher-centered, with the teacher controlling the learning process by distributing knowledge to the students. Diaz claims that this approach places the emphasis for learning on the method of dispensing information rather than on facilitating learning by matching learning activities to student learning preferences. Diaz reports that

between 70 and 90 percent of professors still use the traditional lecture method of teaching.

Some research in distance education includes research on business education. In a recent study, Efendioglo and Murray (2000) found that executives in Tutored Video Instruction (TVI) classes in China received lower grades than did the average on-campus MBA students. Navarro and Shoemaker (1999) found that Economics students in cyberspace performed significantly better than traditional learners. The mean score on the final exam for cyberlearners was 11.3, while the mean score for traditional learners was 9.8. This result was statistically significant at the 99% level, with a t-test statistic of 3.70. In a 1998 study, Morrissey's research results showed that case study groups with groupware performed significantly better than traditional face-to-face groups. Results of Schutte's 1998 study indicate that virtual students scored an average of 20 points higher on the 100-point midterm and final exams, a highly significant difference.

Redding and Rotzien (1999) found that the online group is the most successful at cognitive learning as measured by course examinations. In the study by Dutton, Dutton, and Perry (1999), online students performed significantly better than learners in a traditional learner format.

Research Implications

Broad implications can be drawn from a review of original research and other literature on distance education. First is the notion of access. According to Phipps and Merisotis (1999), this notion is unclear. Research questions still unasked include:

- What is the quality of access?
- Does the typical distance education student have the necessary technology skills?
- What are the best ways for students to participate in asynchronous communication?
- Does the institution provide adequate technical support?
- Will the cost of access (computer, modem, and an Internet Service Provider) be prohibitive for a substantial number of students?

Another implication is that technology is no substitute for the human factor in higher education (Phipps & Merisotis, 1999). Faculty still may need to be involved as content experts, learning process design experts, process implementation managers, motivators, mentors and interpreters.

A third implication that can be drawn from the research is that technology is not as important as traditional factors in student learning, success, and satisfaction. These factors include specific learning tasks, characteristics of learners, student

motivation, and, of course, the instructor. Phipps and Merisotis (1999) noted an irony in that the bulk of the research on technology ends up addressing an activity that is fundamental to the academy – namely pedagogy.

Future Research Needs

In an Institute for Higher Education Policy's report (1999), the contention is made that although the overall quality of research on distance education needs improvement, there are several important issues which require further investigation so that discussions on public policy will be based on accurate and adequate information. McHenry and Bozik (1995, p. 7) discuss many needed research topics that are still relevant today. They include:

- How do the communication variables such as nonverbal communication and language change in this mediated setting?
- Are some subjects and courses better suited to this context?
- Is the lack of prompt feedback common to distance learning?
- What effect will lack of immediacy have on student performance?
- What kind of training should be provided to teachers and students?
- Who should provide this training?
- How can we encourage student interaction?

According to Morris and Naughton (1999), further research should be conducted on the implications of distance education on access and equitability. They also suggest research on the new forms of literacy that students might need in order to make use of information delivered via digital media. Potashnik and Capper (1998) recommend further research on the quality of degrees offered over the Internet. How will these degrees be evaluated and how will they compare with degrees acquired at traditional universities?

Despite the research limitations and challenges in distance education, one thing is clear: distance learning is here to stay. According to one study (IDC, 1999), the number of college students enrolled in distance learning will increase from 710,000 in 1998 to 2.2 million in 2002. A senior analyst involved in that study indicates that technological advances are breaking down barriers and altering methods of teacher-student interaction. Further, the reports predicts that by 2002, 85 percent of two-year colleges will offer distance education courses, an increase from only 58 percent in 1998. Another prediction contained in the report is that by 2002, 84 percent of four-year colleges and universities will be offering distance education courses, an increase from 62 percent in 1998.

Conclusion

What does this mean to business educators, today and in the future? This can best be summed up with excerpts from *This We Believe About Distance Learn-*

ing in Business Education ((Policies Commission for Business and Economic Education Members, 1999):

- We believe that an effective and coordinated distance learning program is a valuable component of the business education curriculum.
- As business educators, we believe that distance learning provides access to educational resources for a larger and more diverse population of learners than in the past. In addition, it enables schools to offer courses and other educational experiences that otherwise could not be offered.
- Distance learning creates a positive educational context that significantly alters the level of interaction among the stakeholders and offers several challenges to business educators.
- The use of distance learning will continue to expand as a result of increased technological innovations and competitive forces in the educational marketplace.
- We believe that a significant challenge to business education is to make distance learning as meaningful, interesting, valuable, and interactive as face-to-face learning.
- When developed and delivered well, technology does not impede instruction (p. 26).

References

Anderson, M. R. (1993). Success in distance education courses versus traditional classroom education courses. *Dissertation Abstracts International, 54*(12), 4339A.

Armstrong, R. D. (1998). Faculty strategies for learning to teach at a distance. *Dissertation Abstracts International, 59*(05), 1426A.

Barker, B. O., Frisbie, A. G., & Patrick, K. R. (1989) Broadening the definition of distance education in light of the new telecommunication technologies. In McHenry, L., & Bozik, M. (1995). Communicating at a distance: A study of interaction in a distance education classroom. *Communication Education, 44*(4), 362-371.

Bartel, K. B. (1998). A comparison of students taught utilizing distance education and traditional education environments in beginning microcomputer applications classes at Utah State University. *Dissertation Abstracts International, 60*(01), 0051A.

Bebko, P. R. (1998). Influences upon higher education faculty use of distance education technology. *Dissertation Abstracts International, 59*(02), 0427A.

Becker, B. S. (1999). Distance learning effects of instructor access on student frustration levels. *Dissertation Abstracts International, 60*(03), 0709A.

Betts, K. S. (1998). Factors influencing faculty participation in distance education in postsecondary education in the United States: An institutional study. *Dissertation Abstracts International, 59*(07), 2376A.

Bloom, B. S. (1981) Foreward. In McHenry, L., & Bozik, M. (1995). Communicating at a distance: A study of interaction in a distance education classroom. *Communication Education, 44*(4), 362-371.

Blumenstyk, G., & McCollum, K. (1999). 2 reports question utility and accessibility in distance education. *The Chronicle of Higher Education, 45*(32), A31.

Brouard, R. D. (1996). The relationship between student characteristics, computer literacy, technology acceptance, and distance education student satisfaction. *Dissertation Abstracts International, 57*(05), 2009A.

Brown, G., & Wack, M. (1999). The difference frenzy and matching buckshot with buckshot. [On-line] Available: http://horizon.unc.edu/ts/reading.

California Distance Learning Project. (1999). Distance education research. [On-line] Available: http://www.otan.dni.us/cdlp/distance/deresearch.html.

Chaffee, E. (2001). Keeping our eyes on the target: The "other" use of technology in education. [On-line] Available: http://hori[illegible].unc.edu /TS/ commentary.

Clow, E. D. (1998). Two-year college students in interactive distance education classes: The relationship of learning strategies to persistence and performance. *Dissertation Abstracts International, 60*(02), 0317A.

Coldeway, D. O., MacRury, K., & Spencer, R. (1980). Distance education from the learner's perspective: The results of individual learner tracking at Athabasca University. In California Distance Learning Project. (1999). Distance education research. [On-line] Available: http://www.otan.dni.us/cdlp/distance/deresearch.html.

Diaz, D. P. (2000). Carving a new path for distance education research. [On-line] Available: http://horizon.unc.edu/TS/commentary.

Dutton, J., Dutton, M., & Perry, J. (1999). Do online students perform as well as traditional students? Submitted for publication, North Carolina State University.

Efendioglo, A., Murray, L. W. (2000). Education at a distance: Teaching executives in China. *The Journal, 27*(06).

Egan, M. W., Sebastian, J., & Welch, M. (1991). Effective television teaching: Perceptions of those who count most...distance learners. In California Distance Learning Project. (1999). Distance education research. [On-line] Available: http://www.otan.dni.us/cdlp/distance/deresearch.html.

Ehrmann, S. C. (1995). Asking the right question. *Change, 29*(2), 20-27.

Gillispie, C. C. (1996). Perceived values of computer-mediated communication use for business instruction. *Dissertation Abstracts International, 57*(10), 4240A.

Goodwin, B. N. (1993). A study of the perceptions and attitudes exhibited by distance education students and faculty at the University of Phoenix online program (Arizona). Dissertation Abstracts International, 55(04), 0939A.

Illinois Virtual Campus. (2000). Status report.

Institute for Higher Education Policy. (2000). Distance learning in higher education: A CHEA update.

International Data Corporation.(1999). Distance learning takes off, fueled by growth in internet access. [On-line] Available: http://www.idc.com.

Kodali, S. (1998). Instructional strategies used to design and deliver courses online. *Dissertation Abstracts International, 59*(04), 1056A.

Kruh, J., & Murphy, K. (1990). Interaction in teleconferencing: The key to quality instruction. In McHenry, L., & Bozik, M. (1995). Communicating at a distance: A study of interaction in a distance education classroom. *Communication Education, 44*(4), 362-371.

Ludlow, B. L. (1994). A comparison of traditional and distance education models. Proceedings of the Annual National Conference of the American Council on Rural Special Education. In California Distance Learning Project. (1999). Distance education research. [On-line] Available: http://www.otan.dni.us/cdlp/distance/deresearch.html.

Martin, E. E., & Rainey, L. (1993). Student achievement and attitude in a satellite-delivered high school science course. In California Distance Learning Project. (1999). Distance education research. [On-line] Available: http://www.otan.dni.us/cdlp/ distance/deresearch.html.

McCabe, M. F. (1997). Online classrooms: Case studies of computer conferencing in higher education. *Dissertation Abstracts International, 58*(05), 1566A.

McHenry, L., & Bozik, M. (1995). Communicating at a distance: A study of interaction in a distance education classroom. *Communication Education, 44*(4), 362-371.

McMillan, W. A. (1997). The effect of computer-mediated discussion on learning for the non-traditional higher education student. *Dissertation Abstracts International, 58(*11), 4174A.

Merisotis, J. P., & Phipps. R. A. (1999). What's the difference? *Change, 31*(03), 12-17.

Moore, M. G., & Thompson, M. M. (1990). The effects of distance learning: A summary of literature. ERIC Document Reproduction Service No. ED 330 321.

Moore, M. G., & Thompson, M. M. (1997). *The effects of distance learning.* (Rev. ed. ACSDE Research Monograph No. 15). University Park, PA: American Center for the Study of Distance Education, Pennsylvania State University.

Morris, D., & Naughton, J. (1999). The future's digital, isn't it? Some experience and forecasts based on the open university's technology foundation course. *Systems Research and Behavioral Science, 16*(2), 147.

Morrissey, C. A. (1998). The impact of the Internet on management education: What the research shows. [On-line] Available: http://horizon.unc.edu/TS/cases/1998-06.asp.

Navarro, P., & Shoemaker, J. (1999). Economics in cyberspace: A comparison study. Discussion Paper, University of California-Irvine, Graduate School of Management.

Phipps, R., & Merisotis, J. (1999). Sharpening the focus on distance education: What the research does and does not show. *On Campus, 18*(8), 10-12.

Phipps, R., & Merisotis, J. (1999). What's the difference? A review of contemporary research on the effectiveness of distance learning in higher education. [On-line] Available: http://www.ihep.com/PUB.htm.

Policies Commission for Business and Economic Education Members. (1999). This we believe about distance learning in business education. *Business Education Forum, 54*(01), 26-27.

124

Potashnik, M., & Capper, J. (1998). Distance education: Growth and diversity. *Finance & Development, 35*(1), 42-45.

Redding, T. R., & Rotzien, J. (1999). Comparative analysis of SDL online training with traditional classroom instruction. Presented at the 14th International Symposium on Self-Directed Learning.

Rueschman, R. J. (1998). Student perceptions of the effectiveness of alternative distance education strategies. *Dissertation Abstracts International, 59*(03), 0794A.

Saba, F.(1998). Is distance education comparable to "traditional" education? [On-line] Available: http://www.distance-educator.com/der/comparable.html.

Schlosser, C. A., & Anderson, M. L. (1994). *Distance education: Review of the literature*. Washington, DC: Association for Educational Communications and Technology.

Schutte, J. G. (1998). Virtual teaching in higher education. [On-line] Available: http://www.csun.edu/sociology/virexp.htm.

Souder, W. E. (1993). The effectiveness of traditional vs. satellite delivery in three management of technology master's degree programs. In California Distance Learning Project. (1999). Distance education research. [On-line] Available: http://www.otan.dni.us/cdlp/distance/deresearch.html.

Threlkeld, R., & Brzoska, K. (1994). Research in distance education. In California Distance Learning Project. (1999). Distance education research. [On-line] Available: http://www.otan.dni.us/cdlp/distance/deresearch.html.

Threlkeld, R. M., Behm, R. J., & Shiflett, M. (1990). Live and interactive: Is it really important? In McHenry, L., & Bozik, M. (1995). Communicating at a distance: A study of interaction in a distance education classroom. *Communication Education, 44*(4), 362-371.

Weimer, M. (1993). Improving your classroom teaching. In McHenry, L., & Bozik, M. (1995). Communicating at a distance: A study of interaction in a distance education classroom. *Communication Education, 44*(4), 362-371.

Chapter 7

Business Teacher Education in an Interdisciplinary Cohort Model

Douglas C. Smith, University of Kentucky

Initial certificate teacher education, despite the occasional reform initiative, has followed a very traditional undergraduate track. The content, of course, has kept pace with the myriad of K-12 education reform initiatives outlined by Lindsey and Strawderman (1995). The actual configuration of teacher education that prospective teachers experience, however, has not changed much in decades. The purpose of this article is to describe an alternative certification program in secondary education developed at the University of Kentucky. The program provides initial certification in Business/Marketing Education, English Education, Foreign Language Education, Mathematics Education, Science Education, and Social Studies Education. The design group for this alternative certification program had five major objectives. The group sought to create a program that:

1. Establishes a strong knowledge base
2. Has rigorous admissions criteria
3. Provides an alternative structure that facilitates matriculation of non-traditional students with diverse life experiences
4. Compels collaborative professional practice by pre-service teachers
5. Requires interdisciplinary thinking and practice

Rationale for the Alternative Design

A major factor in the design of this alternative certification program was the Praxis II Specialty Exams (Educational Testing Service, 1999). Now that the federal government through Title II issues a "report card" on each teacher preparation program, performance on these content exams is critical. To enhance the probability of successful performance by teacher education candidates, the University of Kentucky design group decided to require an awarded bachelor's degree in the content area of certification. For example, applicants for the option in Business/Marketing Education must have earned an awarded bachelor's degree in any business major. In the three years since the alternative teacher certification program has had graduates, every business/marketing teacher

candidate has exceeded the Kentucky Praxis II specialty examination cut-off score for teacher licensure.

To ensure that applicants in this program have strong potential as teachers, the alternative teacher certification program had additional admission criteria. Those criteria include a 1,200 minimum score on the Graduate Record Examination, 2.75 grade point average in both the major and the awarded degree, 100 clock hours of field experience with adolescent children, three professional references, criminal background clearance, and an interview by university faculty in the content major, education faculty, and practicing teachers.

The University of Kentucky design group also wanted to entice non-traditional students to their alternative certification program. Feedback from a focus group of interested non-traditional students indicated that they perceived pre-requisites and time-in-program as obstacles to their admission. Therefore, the design group built into the program no education courses as pre-requisites. The design group also structured the program so that the program could be completed in one calendar year. The program, therefore, is very intensive but graduates of the program consistently report support for this program completion timeline.

Another feature that the University of Kentucky design group needed was a focus on collaboration. Evidence of collaboration is one of Kentucky's New Teacher Standards (Kentucky Education Professional Standards Board, 1999) that applicants for certification must demonstrate. Of particular concern to the University of Kentucky design group was development of substantive collaborative experiences for pre-service teachers outside of their subject areas. The need expressed by the University of Kentucky design group is also described by Bennett, Ishler, and O'Loughlin (1992). They provide a in-depth rationale for collaboration in teacher education. The lack of emphasis on collaboration is reflected in current textbooks. Two contemporary textbooks on teaching in secondary schools, for example, provide only fleeting references to collaboration. These typical textbooks are authored by Callahan, Clark, and Kellough (1998) and Garcia, Spalding, and Powell (2001).

Another feature considered important by the University of Kentucky design group was the ability of pre-service teachers to work collaboratively across disciplines. Interdisciplinary work for school children is not a new concept. Henson (2001) credits the Progressive Movement for creating a blend of disciplines where more understanding may result. He discusses a "core" that is essential for all students, and recommends that some of the experiences be interdisciplinary.

One reform initiative that the University of Kentucky design group studied was the concept of Professional Development Schools. These schools are similar to the laboratory schools of the progressive era. Rather than being owned and managed by institutions of higher education, the public schools form partners with colleges that include field immersion for pre-service teachers and professional development opportunities for in-service teachers. For example, Hayes, Wetherill, Watson, Nolan, Grissett, Midgett, Dudley, and Brinkley (1996) describe the professional development school project between the University of North Carolina at Wilmington and two local county school systems. They provide a comprehensive review of the professional development school initiative from conceptual framework to reflections on implementation.

Hecht, Bland, Schoon, & Boschert (1996) describe the professional development school partnership between Illinois State University and the Wheeling, Illinois public schools. Their findings indicated statistically significant differences showing a positive influence in perceptions about teaching of pre-service teachers as well as their mentor in-service teachers. Torrez (1999) reported that professional development school participants challenge students in core content, work effectively with diverse populations, work effectively with colleagues, and become reflective practitioners.

Another technique to induce collaboration and interdisciplinary thinking in teacher preparation is the use of cohort groups. Barnett and Caffarella (1992) described the use of cohort groups of prospective school administrations. In particular, they stress the power of this technique to create diversity in working groups. Students in such groups study together and share field experiences. They found that the students in the cohort actually continued to function as support networks after the program was completed. They also described four key components of cohort grouping: initial development activities, reflective seminars, individual learning opportunities, and long-term involvement.

Basom , Yerkes, Norris, and Barnett (1995) also described cohort configurations to prepare school administrators. They concluded that pre-service school administrators developed a strong feeling of inclusiveness, developed collaboration skills, and experienced enhanced academic performance.

Barnett, Basom, Yerkes, and Norris (2000) stressed the use of cohort groups to enhance organization efficiency. Further, they indicated learner benefits, such as the ability of cohort members to bond as professionals, enhanced teamwork, integration of theory and practice, the ability to share insights, and the ability to

form groups with diverse members. They also cited several problems. For example, cohort configurations create communication challenges and increase costs to students.

Empowerment is the term that Kelly and Dietrich (1995) used to describe the primary benefit of the use of cohorts. They indicated that academic and emotional support for pre-service teachers in cohort configurations manifested itself in this sense of empowerment. Peterson, Benson, Driscoll, Narode, Sherman, and Tama (1995) define the concept of cohort grouping. They also describe their use in development of flexible, thematic instruction.

The University of Kentucky Interdisciplinary Cohort Model

The University of Kentucky interdisciplinary cohort model described in this article applies the concept of cohort groups to secondary education. Students as pre-service teachers are assigned to two groups. The first is an interdisciplinary team, referred to as a "school cohort" that is based in public high schools. The other group includes pre-service teachers from the four school cohorts.

The foundational principle of the University of Kentucky interdisciplinary cohort model of teacher preparation, illustrated in Figure 1, is that the unifying theme of the model is ***not*** area of teacher certification, such as Business/ Marketing, English, Foreign Language, Mathematics, Science or Social Studies. The University of Kentucky model required another unifying theme that brings together pre-service teachers in a manner that required collaboration in problem solving about schooling. The unifying theme of the University of Kentucky interdisciplinary cohort model is the particular secondary school in which the respective cohort is assigned. The model was developed at the University of Kentucky as either a fifth year non-degree or master's degree program.

The School Cohorts

Students in this program work in a public school, referred to as a "cohort" school, starting in the first week of matriculation and are, therefore, required to be available during working public school hours. Their first event is assignment to a particular cohort school. An interdisciplinary team of in-service teachers is assigned to each of the designated schools. In the University of Kentucky example, there are four "cohort" high schools that each work with an interdisciplinary team representing the certification areas of business and marketing education, English education, foreign language education, mathematics education, science education, and social studies education. The proportion of the in-service

team from each certification area is determined by the proportion of pre-service teachers of each certification area employed in the school.

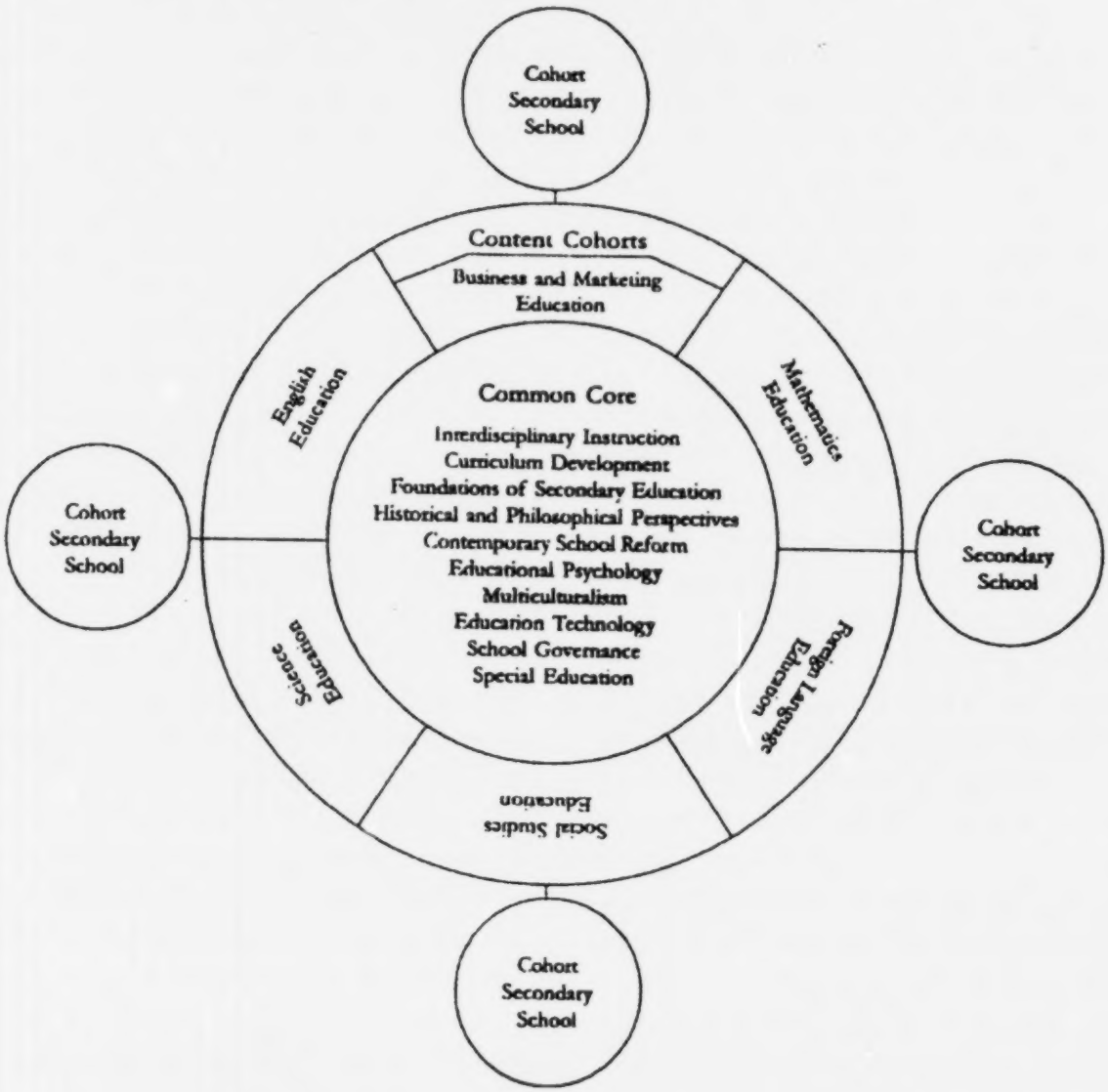
Each cohort school is assigned a university faculty member as a "faculty in residence". The in-service teachers meet in the school as a team to discuss such issues at that school in the context of school culture, administration, multiculturalism, technology, and special needs. Each cohort school team has an electronic discussion forum for facilitating dialog about these issues at that school. The students are immersed in classrooms from the beginning, and their field experiences evolve from classroom observations to full teaching responsibility over the course of one academic year.

A primary function of each cohort group is to meet in the respective high school as a group to reflect on the learning climate, school culture, classroom management, and issues of diversity. They also discuss current situations that arise in the school. They exchange anecdotal data as they reflect on their day-to-day experiences as pre-service teachers, the experiences of the high school students, and the challenges of the experienced teachers with whom they collaborate. They also learn the basics about educational practice in these cohort groups. For example, they examine and prepare individual learning plans for students with special needs, lesson plans, curriculum, and classroom management plans. They work in interdisciplinary teams in planning as well as conducting instruction. These interdisciplinary teams also work on community service projects in the geographic area of their respective cohort schools. They prepare projects that portray the school community. For example, one recent cohort group created a photo display called "The Many Faces of Henry Clay High School." The photographs were all taken in community settings other than school. Each cohort pre-service teacher was paired with a student. The pair chose the settings and poses. The project received a great deal of local publicity including a showing at a local art gallery.

The Common Core

In addition to school cohort meetings and field experiences, students from all the teams meet once a week for the "Common Core." They receive instruction in interdisciplinary instruction; curriculum development; foundations of secondary education, including school culture, and history and philosophical perspectives; contemporary school reform; educational psychology; multiculturalism; education technology; school law and site based decision making; and special education.

Figure 1
University of Kentucky Interdisciplimary Cohort Model



Interdisciplinary instruction. Students learn about strategies for integrated learning developed specifically for secondary education developed by Clarke and Agne (1997). These strategies employ a number of techniques to accomplish what they refer to as "atomization to integration". These techniques include focusing inquiry broadly, fusing subject areas, teaching with themes, stressing thinking processes, nurturing the process of writing, searching for opportunities for technology, using problem-based learning, infusing science with technology in a sociological context, learning to work, integrating teaching with assessment, and supporting continuous renewal of ideas.

The prospective teachers in the interdisciplinary teams study the curriculum as a group. They then focus on content to be delivered in the next month. They brainstorm about interdisciplinary possibilities across the curriculum to be delivered over that month. They then form small groups of 2-4 students to approach curricular topics by discipline. They develop a focus for the interdisciplinary curriculum unit that they will embark on. They schedule common planning sessions to coordinate the work. When the project is complete and the in-service teachers with whom they are working approve the project, each of the members participates in teaching the unit.

The application of the interdisciplinary strategies and techniques is applied through unit development and instruction in the cohort school immediately after the pre-service teachers learn how to develop interdisciplinary units.

Curriculum development. A curriculum development specialist from the state department of education reviews the state's curriculum and unique curriculum development model. Students learn to focus on core content and professional standards for each subject area. They then analyze the curriculum of their respective cohort schools. They interview the chair of the school's curriculum committee. They then select in teams both interdisciplinary topics and content specific topics that they will develop into curriculum, teach, and assess.

The curriculum developed is taught to high school students as soon as feasible. The pre-service teachers discuss the projects with both in-service teachers and high school students throughout the process. They then reflect on learning climate, student learning, assessment mechanism, and instructional method to inform curriculum revision.

Foundations of secondary education. The history of secondary schools could be a very bland topic. However, the history of a particular high school in which the students are working is very interesting to them. These prospective teachers study the history of the particular community, particularly the historical development of its schools. The students research the schools through archival exploration, particularly vintage photographs. To gain a historical perspective, the pre-service teachers interview grandparents and other relatives of their high school students in the respective cohort schools about the relatives' school experiences growing up in the community. They create a photo gallery of the schools and other photographs from the era of the school photographs. That provides a platform from which to place the school within the current context of the community.

Contemporary school reform. Much of today's secondary school reform is rooted in Sizer's (1992a) now famous ***Horace's School: Redesigning the American High School***. As a center piece of a trilogy of books on secondary schooling (Sizer 1996, 1992a, 1992b), this book provides Sizer's blueprint for reform in our high schools. Major reform tools outlined in Sizer's book have become part of the landscape of secondary schools. They include standards-based curriculum, performance and exhibitions as demonstrators of learning, portfolio assessment, a heightened emphasis on the arts, critical thinking as intellectual habit, and block scheduling.

Educational psychology. The prospective teachers in this model do not abstractly study adolescent development, motivation, student behavior, and cognition. They learn about the students that they are observing, interacting with, and teaching in real time. Many of these pre-service teachers are having these experiences with the same students as other pre-service teachers in their cohort. They interact with their educational psychology professor, their supervising teachers, and school support staff as a team to support individual students in the cohort school.

Multiculturalism. As the pre-service teachers study the multicultural makeup of their respective cohort schools, they get a strong sense of the community from which their high school students come. In addition to learning about experience of minority students in school, they participate in their community outside of school. They move from observers of the multicultural makeup to participants in the learning process.

The pre-service teachers working in cohort schools report a stronger appreciation for the need for a more diverse group of teachers in these schools. A major challenge for the model has been to attract an adequately diverse group of students to ensure diversity in each cohort school.

Education technology. Students develop education technology skills throughout the program with a series of extensive technology workshops. They use the technology facilities of their respective schools to develop learning materials for their classrooms. The also use technology to deliver instruction.

The technology standards for teachers developed by the International Society for Technology Education (2000) are the skill levels that each pre-service student must demonstrate. The teaching portfolios developed throughout the program contain artifacts of his/her best technology products and performances.

School law and site based decision making. Since these pre-service teachers begin their work in the respective cohort schools during the first week of the program, they are acutely aware of the possibility of legal entanglements resulting from their experiences. That causes them to be initially somewhat tenuous, but they are comforted that their professor-in-residence as well as their supervising teachers do understand the legal environment of our public schools. The complex issue of school law is presented throughout the program.

Kentucky schools largely use site-based management to manage their schools. These pre-service teachers are very interested in the decision making at their particular schools. They interview site council members and attend the meetings of the councils.

Special education. One of the most challenging issues for the pre-service teachers in this model is meeting the special needs of their students. They encounter students with special needs as soon as they arrive in the cohort schools. They acknowledge from that point that they will require a great deal of training to work with this challenging students.

Although they receive training in the schools as well as through the program, students continue to express reservations about lack of training in this area. They work with special education professors, special education teachers, as well as their supervising teachers. They attend and participate in special education planning about individual students. As first year teachers following graduation, however, they continue to question their ability to deal with special needs.

A unique feature of the Common Core is that university faculty physically come to the students rather than students going to particular faculty members' classes. This rotation requires a unique structure of credit hours. Since all the students participate in the Common Core rather than take such discrete courses as school psychology, special education, education technology, school administration, and foundations, traditional course credit hours and traditional assignment of faculty load by course credit hour don't work. Such loads have to be credited to "experiences" rather than courses. In the University of Kentucky model, students earn 12 credits for the integrated school cohort and Common Core experience.

Content delivered through presentation, discussion, and other forms of instruction in the Common Core becomes a context for discussion and reflection in the school cohorts. Students immediately apply the Common Core concepts to practical experience in their cohort schools.

The Content Cohorts

Teachers are, of course, certified by content area. This model does not neglect the important role of discipline-specific pedagogy. Each student also belongs to a content cohort that meets once a week to develop discipline identity, development curriculum, and plan instruction. Members of the content cohort are in different cohort schools and enrich the discussion of content methodology by relating it to their current experience. Students in the University of Kentucky model also earn 12 credit hours, including intensive field experiences, through the content cohort.

Program Benefits

The major benefit of this program is that in-service teachers are taught and required to think collaboratively about school culture as well as learning before they have experienced the traditional secondary school routine as teachers. They think as a group about problems of the school that transcend individual disciplines. They learn to focus on the school first, such as the experience of minority and special populations within the school. They then are able to see their individual roles as content teachers as part of the greater enterprise of schooling. For example, business in-service teachers come to see the whole school curriculum before they concentrate on the business education curriculum. They see the entire school curriculum as part of their responsibility as teachers.

In-service teachers and first year teachers in this model do not report a sense of isolation as content specific teachers. They expect to be involved with teachers from other disciplines. They come to trust these teachers and depend on them for support.

The actual products of these teachers are improved. Curriculum development in interdisciplinary teams is enriched through collaboration. The instruction is also improved when teachers work together to discuss instruction and participate in team teaching and interdisciplinary projects. Their sense of classroom discipline is improved because they have shared experiences with other teachers in other subject areas, and they have a sense of how students perform in other contexts.

Another major benefit of the program is the credibility that in-service and preservice teachers, as well as employers, express in the program. In every program assessment, these three groups note the importance of teaching teacher-education students in this immersed manner. The placement record for students in this program is very high.

Non-traditional students respond particularly well to the program. These students want to be "in the action" as soon as possible, and this program affords them that early experience. These students also view the program as an alternative form of teacher certification that honors their undergraduate content degrees. Most of these students start the program one academic year and are certified for the next academic year.

This program is well respected across the various colleges in the university. Faculty in other colleges have confidence in the teacher education program because the students are graduates of their programs. They largely see this program as an extension of their own programs. They are also a valuable part of the interviewing teams that screen the applicants.

Problems with the Model

Despite the rotation of faculty around students in the Common Core, a major problem with this approach, based on the feedback from exit interviews with students, is that it is still difficult for university faculty to model collaborative and interdisciplinary professional behaviors because their employing institutions have even more barriers, such as credit hour allocation and distribution of effort, to collaboration than do secondary schools. In-service teachers need to see collaboration and interdisciplinary behaviors from university faculty in the program before the approach is credible to them.

Another obstacle in this model is the entrenched practices of our secondary schools. Pre-service teachers are being trained in this model to behave differently in their professional practice from the behaviors of most secondary teachers that they observe in their cohort schools. Even with training in the model, in-service secondary school teachers have difficulty mentoring collaborative and interdisciplinary methods in the public schools.

Some new teacher education students have difficulty adjusting to the extremely hectic pace of the secondary school. In this model, they are immersed from the beginning of their programs. The content delivered in the program evolves throughout the program, so students have not had important content, such as classroom management skills, when they start their experiences. While students start with observations in the school, they can become overwhelmed by the experience.

There is, of course, disparity in the number of students available for the interdisciplinary teams. For example, the social studies and English content cohorts are

more subscribed than cohorts in business and marketing, foreign language, mathematics, and science. This disparity creates a problem of "voice" in that discussions and participation may become dominated by pre-service social studies and English teachers. The students do, however, notice that this may be authentic to their cohort schools as well.

Business and marketing education students in the program report that they do not think that business and marketing teachers and the business and marketing education curriculum are well understood by university faculty, cohort school faculty, and cohort students who are not associated with business education. Again, they report that this is authentic to the public schools as well. Faculty in the Common Core and Faculty in Residence in the cohort schools, for example, do not use examples from business education. Regardless of discipline, these faculty seem to understand roles of English, social Studies, math, and science teachers but seem surprised that business and marketing education actually exists in the public schools. Given their chosen professions, they may not have experienced business education in their own schooling and historically have not interacted with business and marketing education students in the public school environment.

Another major obstacle to this model is that university administrators, and state higher education officials, have difficulty thinking outside the confines of credit hours. They have difficulty determining how many faculty need to be assigned to the program. They have difficulty determining which departments should get credit for which students. In addition they have difficulty determining how much credit should be assigned to departments and faculty. The very notion of faculty teaching courses without departmental prefixes is bothersome because it is not traditional.

In summary, business and marketing teacher education in an interdisciplinary cohort model offers many advantages, such as the development of collaboration skills and an enhanced sense of school community. Although there are obstacles, such as educating other subject area faculty and pre-service teachers about business and marketing education, the results are compelling evidence of the strength of the model.

In summary, the innovative University of Kentucky Interdisciplinary Cohort Model has many strengths as well as several obstacles. The strengths include:

1. The focus on collaborative learning and teacher practice facilities collaborative learning and teacher practice public secondary schools as graduates enter the profession.

2. The focus on an individual cohort secondary school rather than a specific role such as business teacher provides a comprehensive understanding of the enterprise of secondary schooling.
3. A heightened sense of belonging by pre-service teachers develops as they join a community of learners created by the design of the cohort school configuration.
4. Improved performance by pre-service teachers results when they are immersed in the context of secondary schooling with both a supervising teacher in the school and a university faculty in residence in the school.
5. The program garners enhanced credibility by students and employers as well as respect by other units of the university because the program requires a content bachelor's degree and minimum Graduate Record Examination scores for admission.
6. Non-traditional applicants who already have earned content bachelor's degrees and can handle the pace of a condensed alternative certification program have increased accessibility.

Obstacles to the interdisciplinary cohort model include:

1. The collaboration required of faculty to facilitate the collaboration of pre-service teachers is difficult to achieve because of traditional barriers to collaboration in higher education.
2. Entrenched secondary education practices make implementation of innovative teacher preparation programs difficult.
3. The hectic pace of immersed practice in public secondary schools starting in the first week of the teacher education program is difficult of some pre-service teachers to handle.
4. Disparate enrollment in business/marketing education, English education, foreign language education, mathematics education, science education, and social studies education creates a situation of differential voice by programs with smaller numbers.
5. Business/Marketing pre-service teachers do not think that their discipline is well known or well respected by students and faculty in other certification areas.
6. Operating policies in higher education, such as student enrollment counting and distributions of effort, hamper efforts of faculty to collaborate in reform initiatives that require thinking outside of the boxes that such policies represent.

References

Barnett, B., Basom, M., Yerkes, D., & Norris, C. (2000). Cohorts in educational leadership programs. Benefits, difficulties, and the potential for developing school leaders. *Educational Administration Quarterly, 36*, (2), 255-282.

Barnett, B., & Caffarella, R. (1992). *The use of cohorts: A powerful way for addressing issues of diversity in preparation programs*. Minneapolis, MN: University Council for Educational Administration. (ERIC Document Reproduction Service No. ED354627)

Basom, M., Yerkes, D., Norris, C., and Barnett, B. (1995). *Exploring cohorts: Effects on principal preparation and leadership practice*. (ERIC Document Reproduction Service No. ED387857)

Bennett, R. V., Ishler, M. F., & O'Loughlin M. (1992, Spring). Effective collaboration in teacher education. *Action in Teacher Education, 14*, (1), 25.

Callahan, J. F., Clark, L. H. & Kellough, R. D. (1998) *Teaching in the middle and secondary schools*. (6th ed). Upper Saddle River: Prentice-Hall, Inc.

Clarke, J. H. & Agne, R. M. (1997). *Interdisciplinary high school teacher: Strategies for integrated learning*. Needham Heights, MA: Allyn & Bacon.

Educational Testing Service. (1999). The Praxis Series: Professional Assessments for Beginning Teachers, Princeton, NJ.

Garcia, J., Spalding, E. & Powell, R. R. (2001). *Contexts of teaching: Methods for middle and high school instruction*. Upper Saddle River, NJ: Prentice-Hall, Inc.

Hayes, H., Wetherill, D., Watson, D., Nolan, J., Grissett, Z., Midgett, C., Dudley, M., & Brinkley, B. (1996) *A new vision for school, supervision, and teacher education: The professional development system and model clinical teaching project*. Paper presented at the American Educational Research Association, New York, NY. (ERIC Document Reproduction Service No. ED 400 229).

Hecht, J., Bland, S. J., Schoon, P. L., & Boschert, K. (1996). *Professional Development School 1995-1996*. (Research Report). Illinois State University,

Wheeling School District 21 IL. (ERIC Document Reproduction Service No. ED 404 306.

Henson, K. T. (2001). *Curriculum planning: Integrating multiculturalism, constructivism, and education reform*. New York, NY: McGraw-Hill.

Kelly, S. M. & Dietrich, A. P. (1995). *The influence of program structure and learner characteristics on teacher training outcomes*. Paper presented at the annual meeting of the Mid-South Educational Research Association, Biloxi, MS. (ERIC Document Reproduction Service No. ED 392 787).

Kentucky Education Professional Standards Board. (1999). New Teacher Standards for Preparation and Certification, Frankfort, KY.

International Society for Technology in Education. (2000). *National educational technology standards for students: Connecting curriculum and technology*. Eugene, OR: U. S. Department of Education.

Lindsey, P. & Strawderman, C. (1995). The quest for teachers: On reviewing a decade of reform efforts. *TESE, 18*(2), 253-259.

Peterson, K. D., Benson, N., Driscoll, A, Narode, R., Sherman, D. & Tama, C. (Spring 1995). Preservice teacher education using flexible, thematic cohorts. *Teacher Education Quarterly*, 29-41.

Sizer, T. (1992a). *Horace's school: Redesigning the American high school*. Boston: Houghton-Mifflin.

Sizer. T. (1992b). *Horace's compromise: The dilemma of the American high school*. (3rd ed.). Boston: Houghton-Mifflin.

Sizer. T. (1996). *Horace's hope: What works for the American high school*. Boston: Houghton-Mifflin.

Torrez, N. (1999). Exploratory comparisons from the field: Study of students from two teacher credentialing programs of cross-cultural, language, and academic development (Professional development schools and regular teacher education programs). Paper presented at the annual meeting of the American Association of Colleges for Teacher Education, Washington, DC. (ERIC Documentation Reproduction Service No. ED 428 048).

DELTA PI EPSILON, founded in 1936, is a national honorary professional graduate society for men and women devoted to the advancement and professionalization of business education. Through its ideals of service, leadership, and cooperation, the society strives to make significant and unique contributions to professional growth and scholarly achievement in business education. In the words of its founder, Dr. Paul Lomax, can be seen the scope of the Society, "The professional interest of Delta Pi Epsilon encompass the whole of business education in relation to the entire fields of American business and American education. Its membership must always think in terms of the common good and advancement of all our business teachers and of all students who pursue courses in business education."

ISBN 1-881530-21-3

CE065036

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

ERIC Educational Resources Information Center

REPRODUCTION RELEASE

(Specific Document)

I. DOCUMENT IDENTIFICATION:

Title: Alternative Classroom Management and Instructional Delivery Systems in Business Education	
Author(s): Douglass C. Smith	
Corporate Source: Delta Pi Epsilon PO Box 4340 Little Rock AR 72214	Publication Date: 2002

II. REPRODUCTION RELEASE:

In order to disseminate as widely as possible timely and significant materials of interest to the educational community, documents announced in the monthly abstract journal of the ERIC system, *Resources in Education* (RIE), are usually made available to users in microfiche, reproduced paper copy, and electronic media, and sold through the ERIC Document Reproduction Service (EDRS). Credit is given to the source of each document, and, if reproduction release is granted, one of the following notices is affixed to the document.

If permission is granted to reproduce and disseminate the identified document, please CHECK ONE of the following three options and sign at the bottom of the page.

The sample sticker shown below will be affixed to all Level 1 documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

1

Level 1

[X]

Check here for Level 1 release, permitting reproduction and dissemination in microfiche or other ERIC archival media (e.g., electronic) and paper copy.

The sample sticker shown below will be affixed to all Level 2A documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE, AND IN ELECTRONIC MEDIA FOR ERIC COLLECTION SUBSCRIBERS ONLY, HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

2A

Level 2A

[ ]

Check here for Level 2A release, permitting reproduction and dissemination in microfiche and in electronic media for ERIC archival collection subscribers only

The sample sticker shown below will be affixed to all Level 2B documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

2B

Level 2B

[ ]

Check here for Level 2B release, permitting reproduction and dissemination in microfiche only

Documents will be processed as indicated provided reproduction quality permits.
If permission to reproduce is granted, but no box is checked, documents will be processed at Level 1.

I hereby grant to the Educational Resources Information Center (ERIC) nonexclusive permission to reproduce and disseminate this document as indicated above. Reproduction from the ERIC microfiche or electronic media by persons other than ERIC employees and its system contractors requires permission from the copyright holder. Exception is made for non-profit reproduction by libraries and other service agencies to satisfy information needs of educators in response to discrete inquiries.

Sign here, → please

Signature: Robert B. Mitchell	Printed Name/Position/Title: Robert B. Mitchell, Executive Director	
Organization/Address: Delta Pi Epsilon PO Box 4340; Little Rock AR 72214	Telephone: (501) 219-1866	FAX: (501) 219-1876
	E-Mail Address: dpe@ipa.net	Date: 6-4-03

(Over)

III. DOCUMENT AVAILABILITY INFORMATION (FROM NON-ERIC SOURCE):

If permission to reproduce is not granted to ERIC, *or*, if you wish ERIC to cite the availability of the document from another source, please provide the following information regarding the availability of the document. (ERIC will not announce a document unless it is publicly available, and a dependable source can be specified. Contributors should also be aware that ERIC selection criteria are significantly more stringent for documents that cannot be made available through EDRS.)

Publisher/Distributor:	Delta Pi Epsilon
Address:	PO Box 4340 Little Rock AR 72214
Price:	$22 per copy

IV. REFERRAL OF ERIC TO COPYRIGHT/REPRODUCTION RIGHTS HOLDER:

If the right to grant this reproduction release is held by someone other than the addressee, please provide the appropriate name and address:

Name:	
Address:	

V. WHERE TO SEND THIS FORM:

Send this form to the following ERIC Clearinghouse:

Acquisitions Coordinator
ERIC Clearinghouse on Adult, Career, and Vocational Education
Center on Education and Training for Employment
1900 Kenny Road
Columbus, OH 43210-1090

However, if solicited by the ERIC Facility, or if making an unsolicited contribution to ERIC, return this form (and the document being contributed) to: